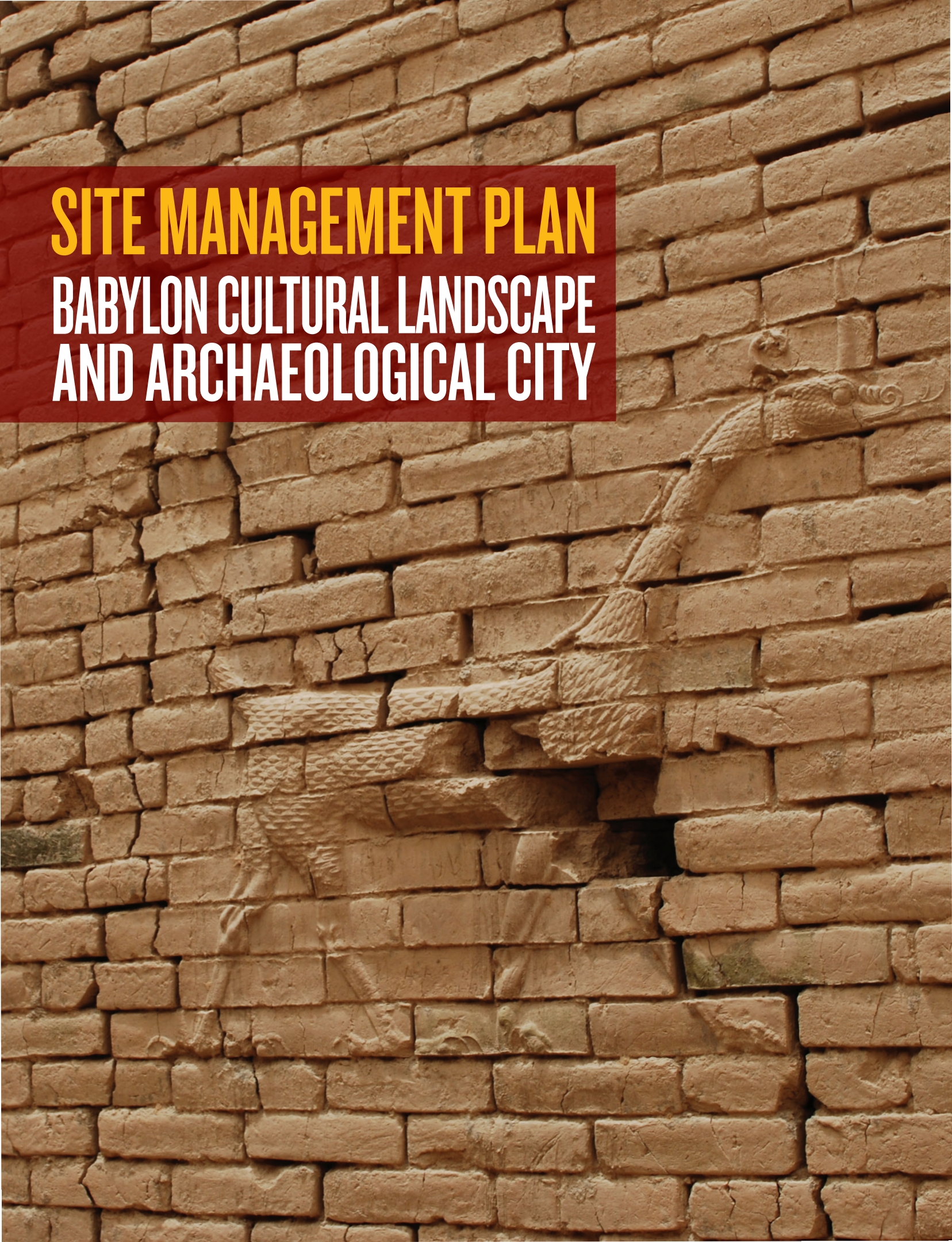


SITE MANAGEMENT PLAN

BABYLON CULTURAL LANDSCAPE AND ARCHAEOLOGICAL CITY

SITE MANAGEMENT PLAN

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Abbreviations Used Throughout this Report

ATHAR	Architectural-Archaeological Tangible Heritage of the Arab Region
BAP	Babylon Archaeological Project
BCA	Babylon Community Association
BDWG	Babylon Documentation Work Group
BSMP	Babylon Site Management Plan
BTBCC	Babylon Tourism Business Contact Committee
CAD	Computer-Aided Design
CEB	Consulting Engineering Bureau
CHU	Container Housing Units
CPA	The Coalition Provisional Authority
CRAST	Centro Ricerche Archeologiche e Scavi di Torino
DAI	Deutsches Archäologisches Institut or German Archaeological Institute
DGSMI	Directorate General of Geological and Mineral Surveys, Ministry of Industry
DOG	Deutsche Orient-Gesellschaft
DPCA	Date Palm Conservancy Area
FCSDIP	Al-Furat Center for Studies and Designs of Irrigation Projects
GIS	Geographical Information System
GPS	Global Positioning System
ICBS	International Committee of the Blue Shield
ICC	International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq
ICCROM	International Centre for the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
LCCHP	Lawyer's Committee for Cultural Heritage Preservation
MTA	Ministry of Tourism and Antiquities
PC	Provincial Council
PRT	Provincial Reconstruction Team
SBAH	State Board of Antiquities and Heritage
SOAH	State Organization of Antiquities and Heritage
UNESC	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
USAID	United States Agency for International Development
VAM	Vorderasiatisches Museum, Berlin
WHS	World Heritage Site
WH+ST	World Heritage and Sustainable Tourism Programme
WMF	World Monuments Fund

SECTION I

Executive Summary



Principles of the Babylon Site Management Plan (BSMP)

The Babylon Site Management Plan's goal is to provide a values-based organizational framework for Babylon's administration. Grounded in international standards and the national legal structure, but cognizant of the country's challenging realities, it also seeks to become a model for other archaeological sites in Iraq. To be effective, the Ministry of Tourism and Antiquities (MTA) should officially adopt the BSMP through its State Board of Antiquities and Heritage (SBAH). The SBAH should implement the proposals in conjunction with the Babil Governorate who, in turn, must recognize it as a directive to encase in its development planning and ordinances for greater al-Hillah.

The guiding principles for the BSMP are:

1. Establish the MTA and SBAH as the principal authorities managing the site, with support from and coordination with other agencies, especially the Babil Governorate.

2. Encourage local, national and international stakeholders to work with the SBAH to protect, and conserve the site and its context.

3. Evaluate, manage, and monitor the site as a cultural landscape, respecting the integrity of all its contributing resources.

4. Protect, conserve, and minimize impacts to archaeological fabric, exposed or subterranean, wherever possible.

5. Regulate and coordinate the site's research and excavation potential in conjunction with sound conservation policies.

6. Recognize the site's economic potential through sustainable tourism development for a wide range of interested stakeholders.

7. Provide visitors with sound interpretation based on a quality presentation of the site.

8. Ensure accessibility by establishing transportation routes and services for the broad spectrum of users.

Opposite: The Southern Palace, a monumental reconstruction built as part of the Saddam Hussein interventions.

Organization and Structure

The BSMP consists of a written report enhanced by photographs and graphics, 15 planning maps and several specialized assessments. The Executive Summary contains the guiding principles of the site management plan, challenges related to its assembly and implementation, and summarizes Babylon's historical and current significance.

The second section offers a detailed description of the site through an analysis of the historical context, existing conditions, and character-defining features. It covers the site's location, its archaeological history, and assessments of the built and natural environments. It also identifies a range of stakeholders and sets forth the existing legal protection framework that governs Babylon. Accompanying maps illustrate many of these topics.

Section III explains priorities and objectives, proposing management solutions through text and master planning-type maps organized for cross-reference. These serve to place the results of specialized assessments, commissioned by the SBAH and its partner World Monuments Fund (WMF), in the context of a site management plan that balances preservation with the economic opportunities that are important to many stakeholders.

Section IV, the Action Plan, presents activities supporting the management of Babylon within a twenty-year implementation timetable, systematized into three phases highlighting Babylon's potential nomination for UNESCO's World Heritage List and reviewing Babylon's case according to World Heritage criteria.

Site History

An imperial capital, center of commerce, art and learning, Babylon was among the largest, early urban settlements in human history and is today one of the world's most significant archaeological sites. Located on the banks of the Euphrates River, 85 kilometers south of Baghdad, Babylon's material remains include portions of temples, palaces, fortification walls, monumental gateways and the ziggurat Etemenanki, the probable inspiration for the biblical Tower of Babel.



Detail from the Code of Hammurabi stela, (circa 1760 B.C.), Louvre, Paris.



***The Tower of Babel*, Pieter Bruegel the Elder, 1563.**

Babylon's legacy was enhanced by Akkadian and Sumerian cultural achievements, which included the cuneiform writing system, a significant tool for today's knowledge of the history and evolution of the region. The earliest known references to the city date to the third millennium B.C.[1] In the nineteenth century B.C. an Amorite leader founded the First Dynasty of Babylon. Its most famous king, Hammurabi (r 1792–1750 B.C.), renowned for his code of laws, made Babylon the capital of an empire stretching from the Arab Gulf to Syria. The Kassite kings who ruled Babylon in the mid-second millennium corresponded with Egypt's pharaoh, their cuneiform letters attesting to the interactions of ancient powers. Astronomy was first elaborated as a science in Babylon, alongside advances in mathematics that would inform all subsequent studies of the stars.

The Assyrians, Babylon's northern neighbors, incorporated the city into their empire but suffered repeated rebellions. Sennacherib sacked the city in 689 B.C.; his son Esarhaddon restored it, but war between his two sons would subject Babylon to another protracted Assyrian siege. In the late seventh century B.C. the Babylonian kings Nabopolassar and Nebuchadnezzar II reclaimed Babylon and ruled over much of the Assyrians' former empire. Nebuchadnezzar II rebuilt the city, making it the largest in the world. During his reign, the ziggurat Etemenanki reached over 70 meters high with a temple shrine at its summit.

The historian Herodotus (fifth century B.C.) described and perhaps visited Babylon, as did subsequent Greek scholars who were the first to describe the Hanging Gardens as one of the Seven Wonders of the World. Conquered by Cyrus II in 539 B.C., Babylon lost its political supremacy but retained its place as a cultural and commercial capital. In 331 B.C. Alexander the

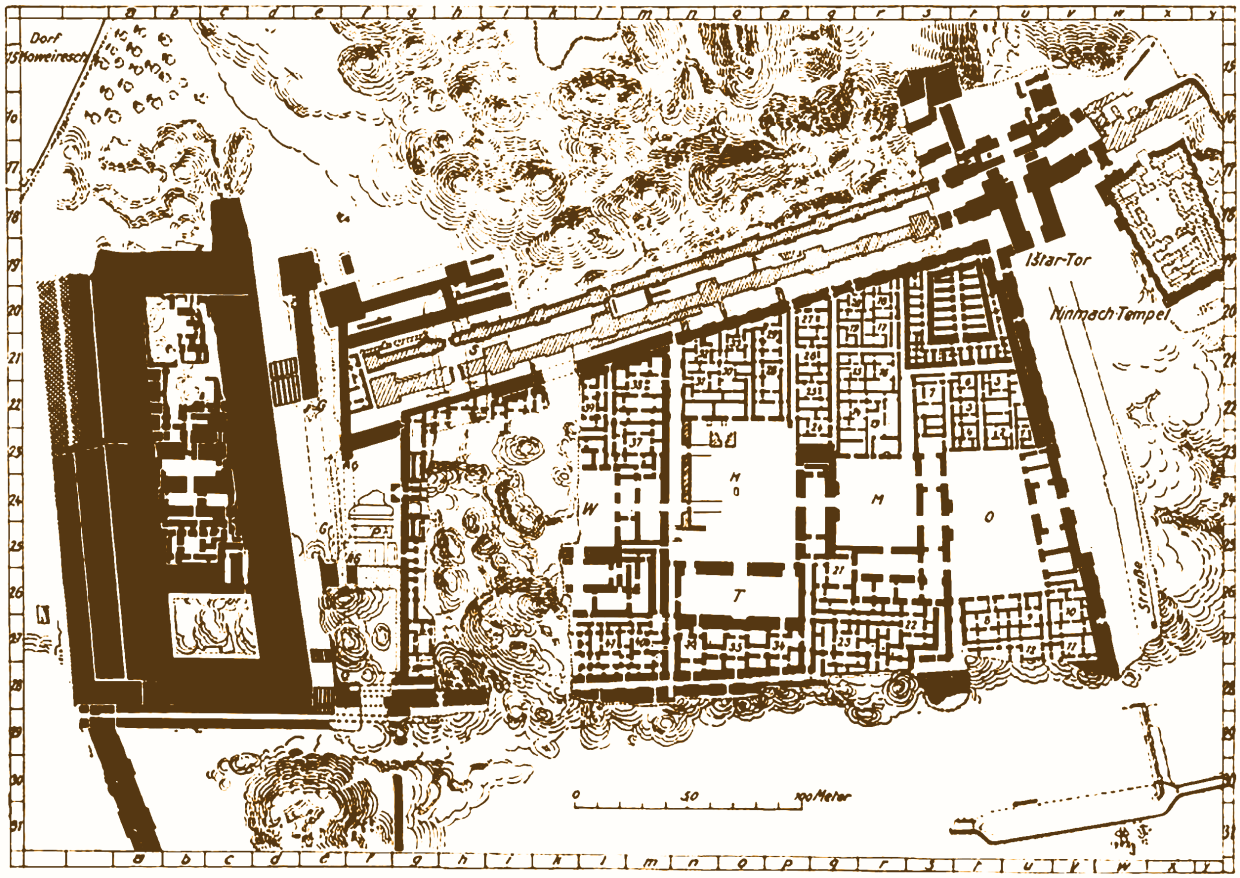
1 For a general history of the city see J. Oates, *Babylon* (London: Thames and Hudson, 1986). For a more detailed account covering the Neo-Assyrian and Neo-Babylonian periods see John Boardman, et al., eds. *The Cambridge Ancient History* 3 (1), 1982 and 3 (2), 1991.

Great conquered Babylon and planned extensive reconstruction, but died before completing his work to rebuild the Tower of Babel. Babylon and its environs were inhabited throughout the Hellenistic and Parthian periods. There is evidence that the area was populated, albeit sparsely, for centuries afterwards, as the city's fame receded and its ruins abandoned.

Babylon's imagery and narrative have inspired myth, philosophy, art and literature through time and continue today to be a topic of books, song, popular films, and documentaries. The Old Testament offered Babylon's greatness as a cautionary tale, a warning against hubris, idolatry, and the moral laxity linked to the city's wealth. Babylon figures prominently in the Old Testament and the Qur'an mentions it in reference to a tale of angels.[2] The classical and modern references to Babylon in works of art and scholarship are too numerous to mention; the city's artifacts can be seen in museums around the world.

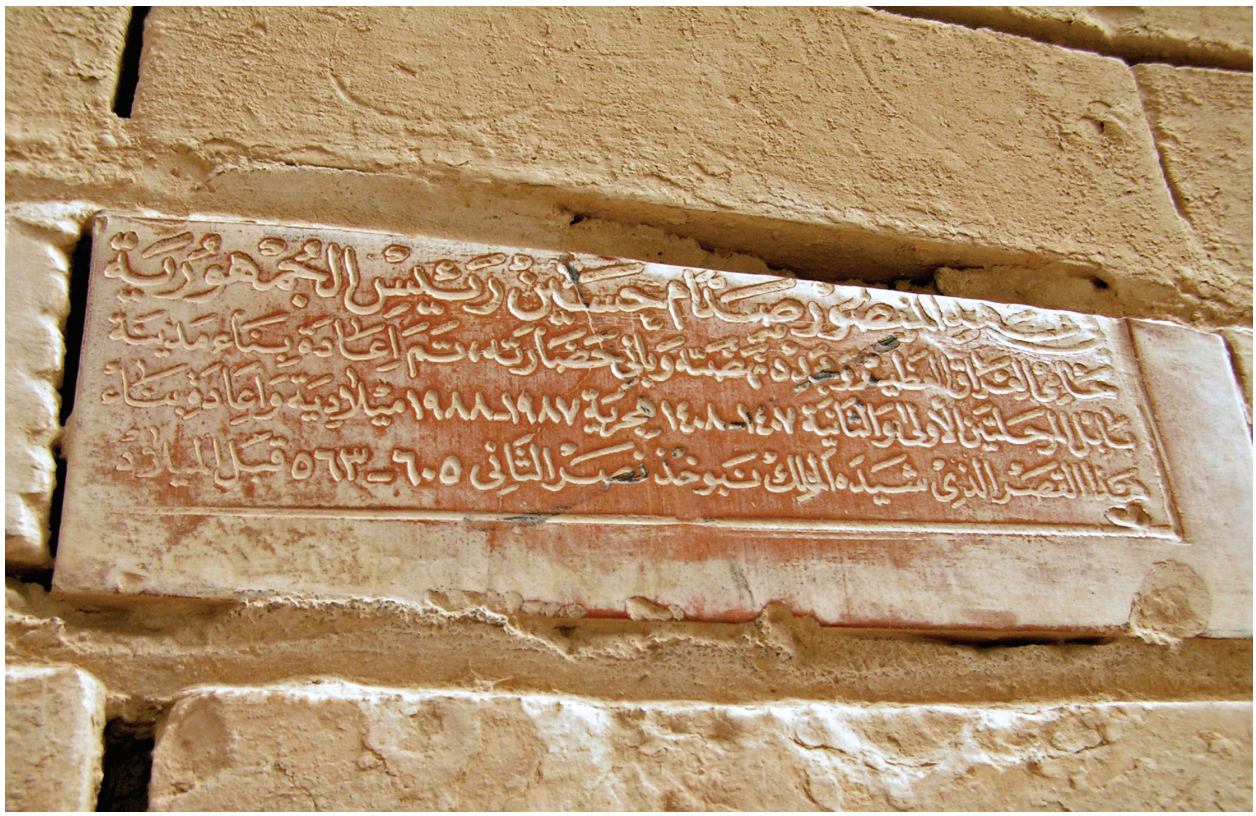
Although travelers explored Babylon over the centuries, Robert Koldewey and the Deutsche Orient-Gesellschaft from 1899 to 1917 conducted the most extensive systematic excavations that revealed the ancient remains visible today. The German mission's findings and the study of cuneiform texts offer the best indications of the city's size and functions, though Iraqi and foreign excavations since have added much to the archaeological picture.[3] Babylon was the center of an urbanized, agriculture-based state whose rulers diverted the Euphrates River into a network of man-made canals to maximize cultivation of the rich alluvial plain. Farming, using these traditional irrigation techniques, remains a principal occupation of the area.

Robert Koldewey's plan of the Southern Palace with adjoining fortifications, including Ishtar Gate.



2 Sura al-Baqarah (The Cow) 102. The story of Harut and Marut as explained in the Qur'an.

3 Foreign excavation findings are footnoted throughout Chapter 2.



Brick stamped with the following Hussein-era inscription: In the reign of victorious Saddam Hussein—the President of the Republic, the protector of great Iraq, renewer of its renaissance and establisher of its civilization—the reconstruction completed for Babylon in two stages 1407–1408 A-H/1987–1988/A.D. and for this palace, which was originally built by the King Nebuchadnezzar II in 605–563 B.C.

Just as Babylon's ancient kings aligned themselves with the city's vaunted heritage by restoring or erecting monuments, so modern leaders have sought to leave their mark and bask in Babylon's reflected glory. In the late 1950s the 'Abd al-Karim Qasim-led Iraqi government (1958–1963) began redeveloping the site, but it was Saddam Hussein (1979–2003) who commissioned the most wide-ranging interventions.

Inspired by Nebuchadnezzar II, Saddam rebuilt Babylon's ruins as a means of promoting national pride and his self-image, reconstructing Nebuchadnezzar's Southern Palace and creating a hill (Mt. Saddam) topped with a palace of his own. Like Nebuchadnezzar and other ancient kings, Saddam cut canals and lakes and embossed the bricks for his new buildings with his name. Uninformed by conservation techniques these reconstructions have fallen into disrepair, at times bringing parts of the original structures down with them.

Before and after Saddam's interventions Babylon's fabric was drastically altered in modern times, from construction of a railway in the 1920s to digging oil pipelines in the latter half of the twentieth century, incursions through the site were many and often irreversible. The damage continued yet again when Babylon became a military base ('Camp Alpha') for portions of the Coalition Forces in April 2003. The site was handed back to the SBAH on December 2004, still bearing the scars of the occupation.

Like few places on Earth, Babylon has stood at the crossroads of millennia of unfolding history. Its visible remains stand as signposts on the path of humanity's creative imagination, marking its achievements and its follies. Together with a landscape shaped by the Euphrates River, Babylon's legacy is that of a civilization interacting closely with its natural environment, a center of government, religion, and scholarship.



Installing crack monitors at the Ishtar Gate

The Future of Babylon Project

In 2005 the United States Department of State, Cultural Heritage Centre funded a project to develop a site management plan for Babylon. This initiative, known as The Future of Babylon Project, is a collaborative and values-based program spearheaded by the SBAH in partnership with WMF and in consultation with a variety of stakeholders within Babylon, the Babil Province, and the country as a whole.

The project's goal is to produce a site management plan for Babylon as a cultural landscape and archaeological city founded on international charters that the SBAH can efficiently implement and maintain. While taking Iraq's political context into account the plan reflects global heritage management trends, including the expanded concept and scope of heritage, and the participation of new groups in heritage-related decisions.[4]

At WMF's request, the SBAH established an oversight committee and work group to support the BSMP's production. The Future of Babylon Committee's members, appointed by SBAH's then Acting Chairman Mr. Qais Rashed, include archaeologists and engineers from the Babil Inspectorate and the SBAH central office in Baghdad. The Committee is responsible for dealing with authorities and entities related to the project, including the Babil Governorate.

In 2009, the Future of Babylon Committee prioritized six areas in the site's core for intervention: the renowned Ishtar Gate, Nabu-sha-Hare, Ishtar and Ninmah temples, the Babylonian houses, and the Inner City Walls (sections to the north and northeast). Identifying these areas involved a thorough examination of the site alongside documentation and data collection, including a building inventory. During the process, the SBAH showed an interest in approaching Babylon not just as an archaeological site but also as an evolving cultural landscape embracing the entire span of its history, including aspects of the 20th-century reconstructions.

In 2011 the Future of Babylon project entered a new phase of intervention developing and implementing stabilization and conservation strategies targeting the priority sites and in support of the BSMP. Thanks to additional funding from the United States Ambassador's Fund for Cultural Preservation, conservation of several priority areas has begun and will continue through 2014.

4 For further information see Marta De la Torre et al., *Heritage Values in Site Management: Four Case Studies.* (Los Angeles: The Getty Conservation Institute, 2005), 3-6.

The Need for a Babylon Site Management Plan (BSMP) and Challenges of Implementation

Conserving a site of such value is complicated by many factors, including the lack of extensive original architecture and pertinent archaeological data. Babylon has suffered from relatively little academic attention in recent decades owing to political conditions (Iraq–Iran War, 1980–1988; Gulf War, 1990–1991; UN sanctions, 1990–2003; Coalition Forces Invasion 2003) that likewise contributed to its inaccessibility to cultural tourism. A combination of exploitation and neglect has left the archaeological site in urgent need of documentation and conservation. A rising water table threatens extant monuments and unexcavated remains and unlicensed construction has dramatically and detrimentally altered the landscape. The presence of the Coalition Forces at Babylon drew international attention to the site and indeed led to numerous discussions about the need for improved understanding and protection of cultural sites in times of conflict.

The project's primary goal is to devise a site management plan for Babylon (BSMP) based on the principles mentioned above. The plan's assembly and implementation relies on the involvement of stakeholder groups or their representatives, those ultimately responsible for the site's future. This inclusive approach differs significantly from Babylon's former twentieth-century management strategies.

During Baath Party rule, Babylon was ostensibly the concern of the SOAH (the State Organization of Antiquities and Heritage, now the SBAH) but it was actually Saddam Hussein's direct domain. Babylon was pressed into the service of political propaganda to legitimize and promote his regime. Babylon became a backdrop for patriotic spectacle; Saddam's 'Babylon International Festival' billed as a culture event, was essentially intended to glorify the Iraqi President himself.[5]



An interior courtyard at Nabu-sha-Hare Temple before the project initiated stabilization activities.

5 John Curtis, "The Site of Babylon Today," eds. I. L. Finkel and M. J. Seymour, Babylon: Myth and Reality (Oxford: Oxford University Press, 2008) 213-216.

Saddam's reconstructions were uninformed by archaeological findings or the painstaking exigencies of conservation. His fascination with the era of Nebuchadnezzar II left the bulk of the city's history in the shadows; archaeologists were not encouraged to develop their understanding of other epochs. The work, although extensive, was less an attempt to study and highlight the site's history than to guarantee Saddam's place in a long line of kings.[6] Nor was Saddam overly concerned with his 'subjects'; the building of his luxury palace atop Mount Saddam necessitated the removal of the village of Kweiresh whose generational inhabitants were offered a meager recompense for relocation.

Babylon's management was placed in the hands of a small group of loyalists whose authority was unquestioned since they acted on the president's orders. His agenda determined what was conserved, interpreted, or in many cases, destroyed. In the midst of Saddam-era interventions in 1982, the SOAH nominated Babylon for consideration as a World Heritage Site (WHS); a decision was deferred. This attempt and two subsequent requests in 1985 and 1991 presented Babylon as a static archaeological site whose history and cultural significance derived from materials and structures excavated in the center of the ancient city. Babylon was denied requests for nomination as a WHS based on several issues, including a concern for the site's authenticity and incomplete boundary and buffer descriptions.[7]

Preserving and managing Iraqi heritage sites have become more difficult in the intervening years. The threats to Babylon include rising groundwater (affecting both excavated and unexcavated archaeology) weighty reconstructions that are destroying extant monuments, and communities within proposed site boundaries and buffers that are growing unchecked. Handling these problems is complicated by institutional constraints within the SBAH and conflicts with provincial and central governments.

Where stood Kweiresh Village, Saddam Hussein erected his palace on an artificial hill overlooking the archaeological remains of Nebuchadnezzar II's Northern Palace.



6 David Simonowitz, "Head Trips: An Intertextual Analysis of Later Architecture and Sculpture Under Saddam Hussein," *International Journal of Islamic Architecture*, Vol. 1, no.1 (February 2012), 73-74.

7 ICOMOS, Evaluation of Babylon #278 (June 1983), 1-3; UNESCO, Report of the Rapporteur for the World Heritage Committee, 7th ordinary session, Florence, Italy (December 1983) 11, http://whc.unesco.org/archive/1983/sc-83-conf009-8e.pdf



At Ishtar Gate masonry additions from the 1980s produced lateral forces that cracked a section of brickwork.

Years of professional isolation from international peers alongside decades of war account for the diminished skills and experience of many SBAH staff. Another aspect of Saddam's legacy is a fraught work environment, where decision-making has long been avoided since the wrong choice could mean a lost job or worse and teamwork has not been encouraged.

Cooperation between central and regional Iraqi governments is likewise rare. Conflicts between SBAH staff and Babil Governorate officials are common due to differing opinions regarding authority and intentions toward Babylon. Forging a cooperative agreement among stakeholders in Babylon's best interests poses a considerable challenge to both the assembly and implementation of Babylon's site management plan.

Iraq's shifting political grounds and competition between regional and national authorities impacts decisions—or the lack thereof—regarding the site. As ministries change hands, so does the SBAH's structure, which in turn affects the Future of Babylon project, the Future of Babylon Committee currently charged with project oversight and the proposed inter-agency committee and site manager who will be responsible for implementing the BSMP (*see* Volume Two). These inter-institutional difficulties, like all work in Iraq, must be negotiated in an unsafe environment, as the threat of violence continues to hinder progress.

The BSMP seeks to reconcile these challenges and constraints as well as build consensus in an emerging democracy. It provides a foundation for guiding and regulating future interventions, proposing sustainable strategies for conservation management, tourism and risk preparedness. The realities of modern Iraq impose a pointed pragmatism; yet assessing these realities in the field constitutes a major step towards the plan's realization. Interactions with an array of individuals from farmers and high functionaries to entrepreneurs, professionals, academics and concerned citizens of every age reveal an inspiring common ground: pride in Babylon as an indication of Iraq's role in the history of civilization is perhaps more meaningful now than ever.

As the country recovers from a destructive cycle of history, its heritage sites are recognized as assets to the nation's reinvention. It is generally accepted that a revived Babylon will attract tourists, media and academic interest, raising Iraq's cultural profile and reopening it to the world. The BSMP brings these goals into focus and will additionally form the basis of a solid and hopefully successful application for Babylon's nomination as a UNESCO WHS.

Methodology for Assembling the Babylon Site Management Plan

The BSMP content and character reflect the values of the SBAH and other stakeholders as well as the shared visions of the SBAH and WMF. Determining and formulating these values, as well as coming to consensus on decisions included in the BSMP, has been the focus of fieldwork from 2009 to the present.

Management planning is a collaborative process requiring trust and mutual understanding. In Babylon this means forging alliances between entities that have rarely, if ever, reached agreement on issues involving values-based directives. Beneficially managing Babylon is nonetheless a strong motivation shared by all stakeholders. Given this climate, the methodology employed in assembling the plan encompassed a variety of strategies to better understand and document the site while fostering creative engagement and building capacity.

Identifying stakeholders and developing partnerships

Babylon's stakeholders are numerous and disparate, ranging from international organizations to provincial governments, from the Ministry of Tourism and Antiquities (MTA) to local farmers. The BSMP methodology includes recognizing these individuals and entities and engaging them wherever possible. While preserving Babylon is the principal concern, the potential financial benefits of the site are important to the Iraqi people. A successful BSMP will offer valid means for enhancing the quality of life of local communities; if Babylon contributes to their well being, they in turn will be motivated to safeguard its enduring viability.[8] Such equitable inclusion of stakeholders will ensure the BSMP's sustainability and is therefore the foundation of the values-based approach.

WMF assisted the SBAH with stakeholder identification and outreach beyond local government to include members of communities in, around and/or using the site. In the Middle East communities near archaeological sites are typically viewed in a negative light, as land encroachers and potential thieves. The BSMP instead aimed to identify opportunities to engage local communities in the site's development and protection in mutually beneficial ways.



Babylon's survival depends on forging improved relations between national and regional government agencies.

SBAH former Acting Chairman Qais Rashed supported the process and encouraged the SBAH to relinquish their traditional top-down approach in favor of greater community participation and cooperation. Despite differing views concerning Babylon's management, stakeholder outreach helped broaden the collective understanding of the site's values.

8 His Highness the Aga Khan for the Aga Khan Historic Cities Programme, "Protecting the Past, Inspiring the Future, *Strategies for Urban Regeneration*, ed. Philip Jodidio (Munich: Prestel Verlag, 2011), 7-11.

Site conditions assessment

With WMF's guidance, the SBAH performed condition assessments including inventories and analyses inspired by master-planning strategies used at other historic cities. The process of identifying the site's resources and their condition proved instructive since these issues had been treated superficially, if at all. In cases where data was limited, the WMF commissioned research from outside consultants. Compiling this data deepened the SBAH's understanding of the site in a comprehensive, holistic context while fostering a methodical and analytical approach to decision-making.



An Ishtar Gate condition assessment conducted by Babylon Committee members, frequent on-site visits by policymakers brought more informed management decisions.

Capacity building

Building capacity within the SBAH is a vital aspect of the Future of Babylon project, to develop, implement and sustain the BSMP. To this end, WMF has organized on-site shadow training with expert consultants, classroom experiences and off-site comparative site management workshops.

Local know-how is preferred when available, not just for the cost advantages but to expand the SBAH's contact network. In the case of the hydrological study, The Future of Babylon Committee chose Consulting Engineering Bureau (CEB), a consortium from the Department of Engineering, Baghdad University, who provided up-to-date studies concerning the impact of and solutions for addressing rising groundwater in the context of archaeological sites. When the need arose for a total station, WMF obtained the equipment and engaged Babil University to offer instruction to SBAH personnel on how to use it.

In 2010, CyArk, an Oakland, California-based firm, was engaged to produce laser-scan documentation of two priority monuments slated for restoration, Ishtar Gate and Nabu-sha-Hare Temple.[9] Two engineers from the SBAH Babylon Documentation Work Group (BDWG) subsequently traveled to Oakland for advanced training in how to extract drawing data from the scans. The engineers returned to Iraq and began creating a detailed documentation package of plans, elevations and sections for the priority sites.

The WMF team is meanwhile building its own capacity to comprehend the management challenges facing the SBAH. Over time the WMF team has come to understand the staff's concerns for themselves and their families, jobs and country and to know them as individuals, building the mutual trust essential to the project's progress.

Comparative planning workshops

Comparative planning workshops held in Egypt, Turkey, Lebanon, and Northern Iraq illustrated the challenges and opportunities of other WHS while establishing linkages with professionals in neighboring countries. These workshops inspired enthusiastic dialogue while helping build capacity. Sensitive BSMP topics, such as working with local government and other stakeholders were more easily broached in this context.

Workshops were initially framed around regional archaeological sites with various site

9 Funding for this initiative was provided by the Samuel H. Kress Foundation.



Babylon Committee members at the Neolithic site of Çatalhöyük, Turkey shared their concerns with its heritage managers.

management issues. SBAH and WMF were able to interact with site managers on an individual basis to understand the various assets and liabilities found at each site. Many sites were either recognized by UNESCO as a WHS or were in the process of getting WHS listing. At Çatalhöyük, Turkey the processing of identifying site significance was begun. This was continued in Beirut, Lebanon where both the SBAH and WMF worked together to compile a tentative list amendment and statement of significance for UNESCO based on the definition of Babylon as both a cultural landscape and archaeological city. In Northern Iraq efforts focused on transferring content generated during the planning process into GIS-based maps.

Site planning methodology

Following international practice, the size and complication of Babylon required detailed central area and sub-area planning for clusters of properties and communities sharing common identity and purpose. Methods included site surveys towards defining these areas in order to address their use and needs not to mention operational processes such as budgeting and human resource commitments through implementation in three stages: Phase One, lasting one to five years; Phase Two, six to eleven years; and Phase Three, twelve to twenty years.

Values-based mapping

Values-based mapping served to illustrate the site's historical layers and character-defining features, while broaching various issues and provoking the responses and decisions necessary to advance the project. This involved generating fifteen GIS-based (Geographic Information Systems) draft maps of the site highlighting different features and presenting the maps to the SBAH for comment and revision. Subsequent drafts incorporated SBAH feedback and WMF suggestions until both partners agreed upon a final version.

GIS software offers a clear, location-based visualization and a strong analytic and modeling framework. For example, by mapping possible visitor routes or excavation sites and overlaying these with other stakeholders' mapped values (for commercial locations, for instance) conflicts and/or matches are identified. Aside from documenting the planning process itself, these maps reveal new datasets to inform future proposals and decisions.

Defining Babylon's significance

Defining the site's sources of significance was necessary in order to establish appropriate management strategies.[10] Determining how to refer to the site, based on its significance, was a major step. The SBAH approved the official title: 'The Babylon Cultural Landscape and Archaeological City' and its implication that recent layers of history will figure in the conservation, interpretation, education, and management planning. Acknowledging the site's evolving as opposed to static significance represents a profound shift from previous interpretations and an important project accomplishment. The notion of a cultural landscape and the possibilities it embodies has become the topic of fruitful dialogue and debate between the SBAH and other stakeholders.

10 De la Torre et al., 3-6.

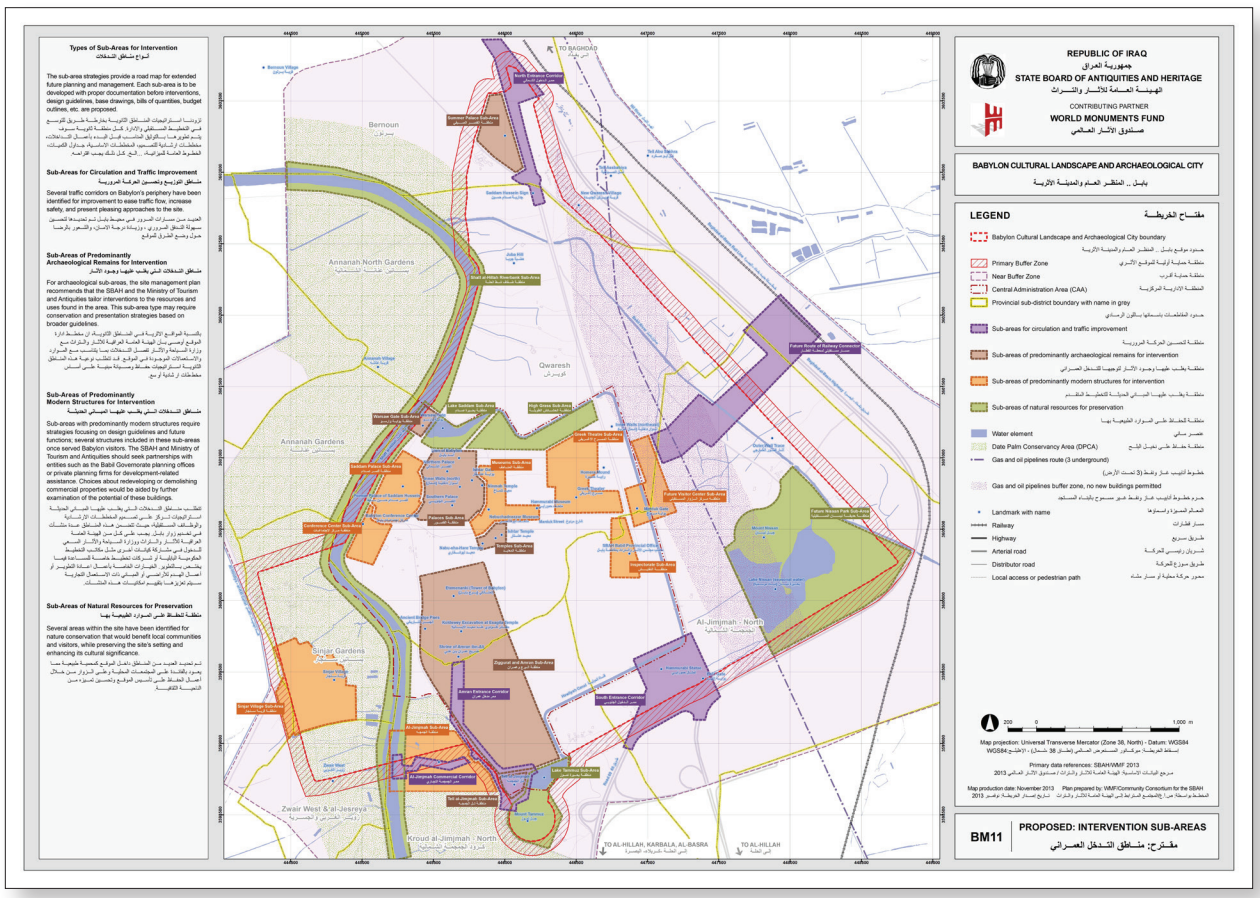
Importance of 'Babylon Cultural Landscape and Archaeological City'

In the recent past, Babylon was defined by narrow historical periods that glorified political agendas rather than expanding scholarly knowledge regarding the site's function and significance over time. Management strategies focused on a few well-known monuments dating to the Neo-Babylonian period.

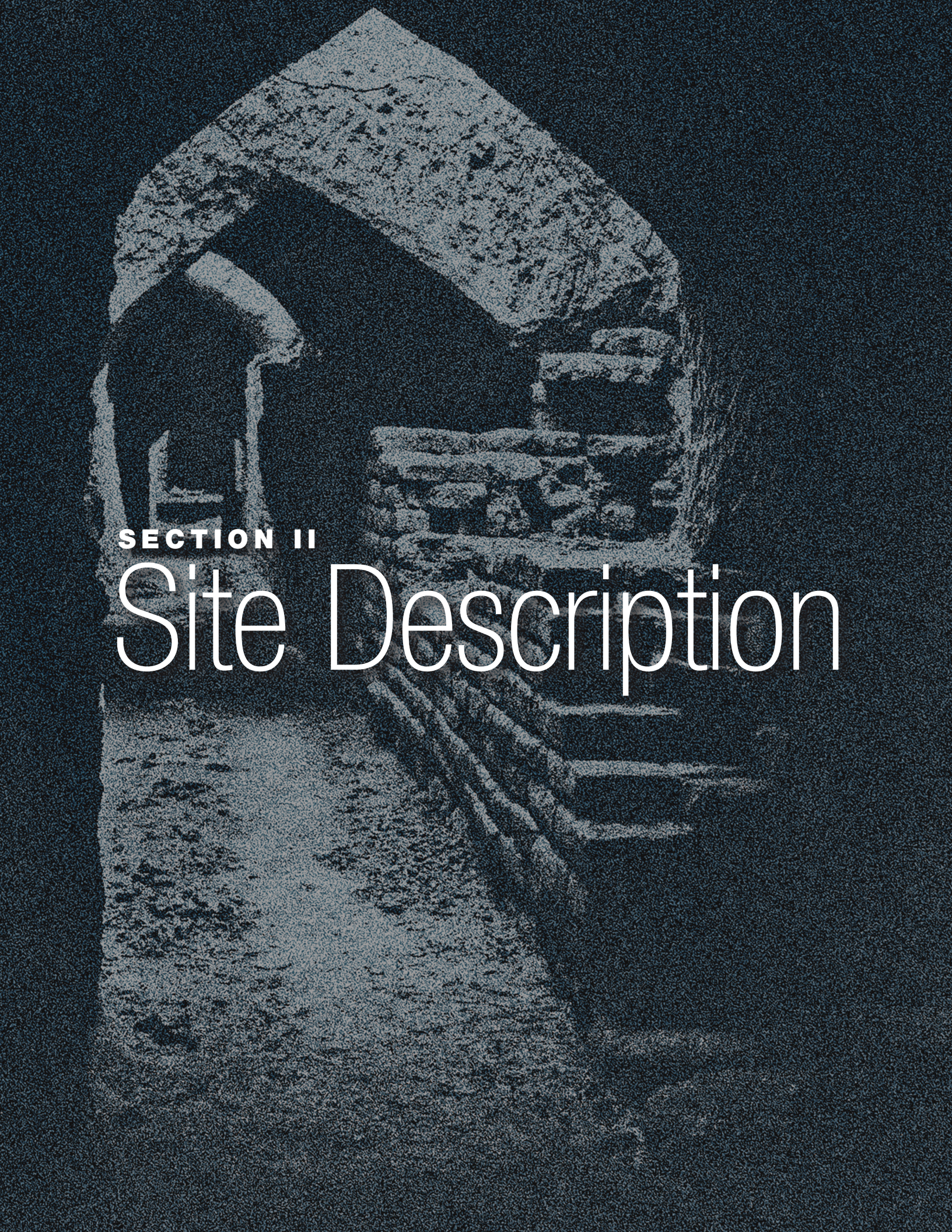
Babylon's value is up for review, both in the context of today's Iraq, a nation attempting to rebuild itself, and for the purposes of the site management plan, a means of reviving a national heritage. The process of formulating an expanded definition encompassing the earliest archaeological remains up to the most recent activities, led to renaming the site the 'Babylon Cultural Landscape and Archaeological City'. This acknowledges Babylon as an evolving landscape, whose modern features figure in the management plan alongside ancient ones.

A re-envisaged Babylon fulfills UNESCO criteria for heritage significance (*see* Action Plan) while emphasizing contemporary Babylon's value both as a national icon in a time of recovery and as a much-needed source of livelihoods, particularly for local communities. Iraq incorporated the resolutions of 1992 World Heritage Convention into its national law (along with the 1954 Hague Convention and 1979 UNESCO convention resolutions) as the legal basis for Babylon's protection as an eventual WHS. By joining the World Heritage Convention, Iraq agreed to ensure the 'protection, conservation, presentation and transmission to future generations of the cultural and natural heritage' within their territory through 'effective and active measures.'[11] The BSMP offers a comprehensive program encompassing the measures required to advance that purpose.

The management plan also comprises 15 detailed maps that became the foundation and complement for assembly of this written report.



11 UNESCO, *World Heritage Convention* (November, 1972) articles 4, 5, http://whc.unesco.org/en/conventiontext/.



SECTION II

Site Description

Babylon's character-defining natural environment, climate conditions, and topography, specifically the Shatt al-Hillah branch of the Euphrates, have shaped the site throughout history and continue to impact its conservation and presentation. Aside from archaeological remains the site's built environment includes modern additions, which both complement and threaten the site's long-term preservation. This section describes the site's archaeological, urban and agricultural background, highlighting existing and potential features that inform the Babylon site management plan's (BSMP) strategies and proposals. It draws on research regarding Babylon's history and studies of current site conditions commissioned and/or performed by the Iraq State Board of Antiquities and Heritage and World Monuments Fund.

Keel-arched tunnel network carved during early twentieth-century excavations parallel to an ancient city wall.

Location

Babylon covers 10.5 Km^2 along the banks of the Shatt al-Hillah branch of the Euphrates River in Central Iraq.[1] Located 85 kilometers south of Baghdad and eight kilometers north of al-Hillah, the capital of Babil Province (*Arabic*, Babylon), Babylon occupies a portion of the alluvial plain between the Tigris and Euphrates rivers known historically as Mesopotamia (*Greek*, 'between two rivers'). The nearest ancient settlements are Kish, Borsippa, Kutha, and Sippar. Two important Shi'a shrines and pilgrimage destinations are nearby, the Tomb of Ali ibn-Abi Talib, the First Shi'a Imam (60 km from Babylon, in Najaf) and the tombs of his sons Hussein ibn-Ali and al-Abbas ibn-Ali (37 km from Babylon, in Karbala).

The Babylon archaeological site is part of the Babil provincial district and municipality of al-Hillah (Qadaa al-Hillah), with the largest portion in the sub-district of Kweiresh (sub-district 16).[2] Other areas of the site fall across the sub-districts of Kroud al-Jimjmah—North (sub-district 15), al-Jimjmah—North (sub-district 19), Sinjar Gardens (sub-district 27), Zwair West and al-Jesreya (sub-district 28), and Bernoun (sub-district 39).

One of the site management plan's objectives is to formally establish an official boundary and buffer zones for Babylon. Until now the site's boundaries have been loosely based on the perimeter of the outer city walls and an agricultural map compiled by the Ministry of Irrigation in 1949. A survey conducted by the SBAH and WMF in 2010 served to re-identify the site's boundaries, which will be gazetted with the Ministry of Justice as part of the legal process.

Climate

Babylon is located in a desert zone (the Middle Saharo-Sindian Sub-Region) characterized by extremely dry, hot air, low rainfall and high rates of evaporation and soil salinity.[3] Babylon's temperatures vary from a monthly mean of 34.6° C in July, to 10° C in January. Some of the world's highest in recent years, summer temperatures stay in the upper 40°C—low 50°C ranges.[4]

Now as in antiquity, rainfall is scarce and sporadic. Normally, the minimum rainfall required to sustain agriculture is 400 mm/year and up; Babylon receives 200mm or less. Rainfall pattern data show mean annual totals for 2000-2010 as lower than that of the previous two decades.[5] This is indicative of a trend throughout Iraq towards increasingly arid conditions. Although rain is typically light, it can fall in large, concentrated showers that destroy crops, damage mud-brick buildings, and cause major drainage problems.

1 The area covered by the legal boundary employed in this site management plan is 10,491,685 square meters; approximately 2,593 acres or 4197 donums, the Ottoman-era land measure most commonly used in Iraq. The site's longitude is 44° 20´—44° 30´E and latitude (32° 30´—32° 35´N).

2 There are four districts in Babil Province: al-Musayyib, al-Hashinmiyya, Mahawil, and al-Hillah.

3 Nature Iraq, "The Future of Babylon Project, Biodiversity Baseline Study," (study commissioned by WMF, 2011), 62.

4 Climate data suggests an ongoing rise in average yearly temperatures.

5 Consulting Engineering Bureau (CEB), "Hydrological Study of Ancient Babylon Site, Final Report," (study commissioned by WMF, 2012), 12.

Topographical Features

The Shatt al-Hillah and other water features

Situated on an alluvial plain, the important feature of the site's mostly flat topography is the Shatt al-Hillah, a branch of the Euphrates River that separates from the Hindiya split approximately 30kms upstream from Babylon and reunites 70kms downstream. Once wide and meandering, the river is now regulated by levees and barrages for flood protection, irrigation, and municipal water requirements. The river's depth varies from seven to fifteen meters.[6]

Mesopotamia's agricultural success was the gift of the Tigris and Euphrates: the entire landscape consists of mineral-rich alluvial deposit. Permanent settlement in the region was historically dependent on rivers, canals, and irrigation agriculture. The shallower, slower-flowing Euphrates was most readily exploited for irrigation. Once harnessed, the silt-rich waters transformed barren desert into some of the richest agricultural land in the ancient world. Canals supplied the needs of large urban populations. The Euphrates, specifically the Shatt al-Hillah branch, helped Babylon to grow into one of the ancient world's greatest cities while its shifting course prompted adaptations in the historic city's fabric over time.[7]

Babylon's canal systems were major, state-sponsored engineering projects, involving substantial investments of planning, labor, and maintenance. Their purpose was to provide both water and effective drainage, which prevent salt levels from spoiling the land (*see* Appendix 1, Geo-Hydrological Study). This required sophisticated water engineering and constant maintenance. Irrigation was essential for cultivating the date palms that defined Babylon's landscape in antiquity and remain a characteristic feature of its topography. Assyrian reliefs illustrating campaigns in Babylonia conventionally use a backdrop of date palms to signify the landscape. These were typically planted closest to waterways, with cereal grains further away.

The Shatt al-Hillah was Babylon's main artery for communication and commerce. Resources like wood and stone were limited, and the ability to ship goods to and from the city was vital. Most goods were floated downriver using goatskin rafts (*keleks*) that could be deflated, folded,



Shatt al-Hillah River flanked with date palm groves.

6 WMF interview with CEB and local residents, 2011.

7 Carlo Lippolis et al., "Babylon's Urban Layout and Territory From Above," Mesopotamia 46 (Firenze: Le Lettere, 2011), 1.

and carried by pack animals back upriver. This practice continued until the mid-twentieth century.[8]

Land-based trade routes included the Khorasan Road, connecting Mesopotamia with northwestern Iran and routes further east to Central Asia. Babylon's blue-glazed baked bricks imitated the lapis lazuli that could only be acquired from distant Afghanistan. Babylon connected this Iranian land-route to the river-based commerce of Mesopotamia, Syria, and the Levant beyond.

In addition to the Shatt al-Hillah, Babylon has several other bodies of water. North of the archaeological site boundary, an Ottoman-era irrigation canal now called the Babil River starts at the Shatt al-Hillah, cuts through eastern Babylon between the outer and inner city walls, and exits at the southeast corner towards adjacent farmland. Between these two water courses lay the manmade Lakes Saddam and Tammuz, dug during the 1980s and connected by the Hawliyah (circumferential) Canal. A seasonal, shallow body of water known as Lake Nissan is connected to the Babil River irrigation canal. Oral testimony suggests that with the exception of Lake Nissan these artificial water features all cut through archaeological deposits.



Mount Nissan and Lake Nissan, part of 1980s interventions.



Amran Hill archaeological mounds and the Shatt al-Hillah.

Land features

Between the Shatt al-Hillah and the Hawliyah Canal's east end, an undulating landscape of archaeological mounds culminates at Amran Hill (49.6 meters above sea level). The site's other high point, also an archaeological mound, is the Summer Palace (50.9 meters above sea level).[9] (See *BM01, 'Archaeology of Babylon'* map)

Saddam Hussein built three hills, conical with flat tops (30 meters high and 300 meters diameter), in triangular formation 2.5 kilometers apart during the 1980s. Mount Nissan is located inside the southeast corner of the site; Mount Saddam between the Shatt al-Hillah and Southern Palace; and Mount Tammuz outside the southern edge of the Neo-Babylonian outer walls. These hills were purportedly intended as stations of a suspended telepherique transport system to carry visitors over the site. Saddam Hussein's former palace on Mount Saddam is the only visible building on the three hills. [10]

The villages of Annanah and Sinjar on the west bank of the Shatt al-Hillah, al-Jimjmah on the east bank, New Kweiresh (corresponding to the modern-day al-Intisar Village) to the northeast, and Bernoun to the northwest, all lie within Babylon's administrative purview and are prominent land features.

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8 Regarding the technology of keleks see H. Kindermann, "Kelek," Encyclopaedia of Islam, Second Edition, Brill Online (2012), http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-2/kelek-SIM_4097.

9 The General Establishment for Surveys completed a 1:2000 scale set of topographic maps in 1980. The survey covered both the west and east banks of the Shatt al-Hillah and provided one meter topographic contours and selected elevations. The high points were tied to on-site benchmarks (now vandalized). Except for date palms the survey omitted most modern physical features concentrating on archaeological remains.

10 Oral history suggests that the hills were meant to house palaces and/or tombs for Saddam Hussein and his sons Uday and Qusay. In 2012 discussion of a telepherique transport system to connect Babylon to al-Hillah was revived by the Babil Provincial Council.

Archaeological History

*(*See *BM01, 'Archaeology of Babylon'* map)

Babylon experienced dramatic changes over time: shifting watercourses, major construction projects (in response to a rising water table and varied political situations), violent destruction, and extensive rebuilding, periods of conflict, ruin, and gradual abandonment. Saddam Hussein's wish to promote his regime by reconstructing the grandiose monuments of Nebuchadnezzar II is but one example of how the city and its material remains have been perceived and deployed. Babylon's use as a military base from 2003-2004 is a further indication of the site's unfolding, living history.

Exploration, excavations, exploitation, and approaches to preservation from antiquity to the present have contributed to the site's condition and character. The BSMP reflects this evolving landscape: the intrinsic value of the site's archaeological remains, the historical process of recognizing their significance, and the motivations behind their study and preservation.

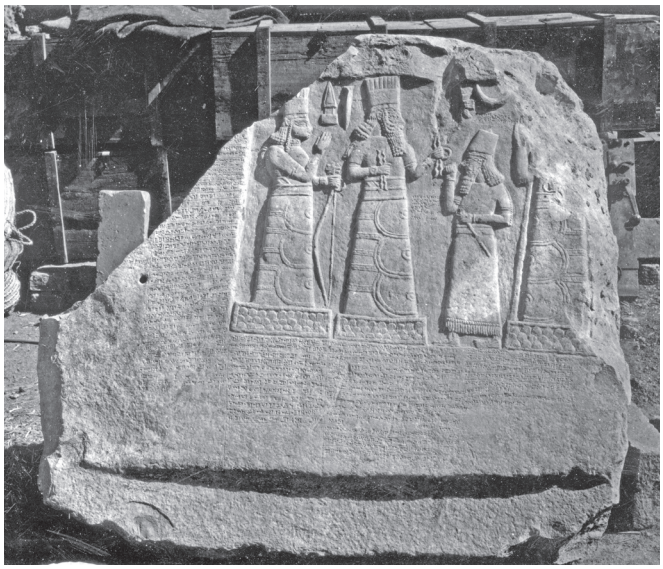
Babylon's history as an archaeological site is complicated and the following sections are meant to present contributing events that define the cultural landscape we now see.



Village workers at the Southern Palace during Deutsche Orient-Gesellschaft excavations, November 1912.

Construction, Preservation and Destruction in Antiquity

Many ancient inscriptions describe the sacred duty of Babylon's kings to maintain the city's temples, and images of kings as builders carrying baskets of earth are common in Mesopotamian art. Royal inscriptions were buried in wall foundations during major construction projects. It was considered highly auspicious when a ruler discovered a predecessor's inscription while building, since this affirmed his connection with the city's royal lineage.[11] Aside from the symbolic importance attached to building and rebuilding (as acts of piety, statecraft, and historical importance) all unbaked mud-brick structures require regular maintenance, and the monumental architecture of a city made entirely of this material ensured a constant need for building works.



The so-called Shamash-resh-usur stele, found at Babylon.

Babylon suffered periods of destructive conflict. The Hittite sack of the city in 1595 B.C. marked the end of the Old Babylonian dynasty, while during the Elamite invasion of c. 1159 B.C. the cult statue of Marduk was carried away from Babylon to Susa and the Code of Hammurabi from Sippar to the same place. In 689 B.C., the Assyrian ruler Sennacherib claimed to have destroyed the city entirely:

> …. more completely than a devastating flood. So that it might be impossible in future days to recognize the site of that city and (its) temples, I utterly dissolved it with water (and made it) like inundated land.[12]

Sennacherib's successor Esarhaddon and his sons Ashurbanipal and Shamash-shuma-ukin initiated extensive building works aimed at the city's reconstruction. When Nabopolassar (626–605 B.C.) freed Babylon from Assyrian control he continued these works. But it was his son, Nebuchadnezzar II (605–562 B.C.), who completed projects on a spectacular scale, marking the apex of the era now known as Neo-Babylonian. Old temples were restored, opulent new ones erected along with palaces, bridges, and other public works often to a much larger extent than previously in baked brick and not only unbaked mud brick.

The transition from Babylonian to Achaemenid rule in 539 B.C. was relatively peaceful and seems to have left few marks on the landscape. The period of Achaemenid rule, however, was marked by Babylonian rebellions, leading to violent reprisals and ultimately the demolition of the ziggurat Etemenanki *c.* 483 B.C. by the Achaemenid king Xerxes.[13] Alexander the Great took

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11 The Cyrus Cylinder offers one of the better-known examples of this practice; it mentions an inscription of the Assyrian king Ashurbanipal that Cyrus discovered during his building works.

12 D. D. Luckenbill, *The Annals of Sennacherib*, Oriental Institute Publications 2 (Chicago: University of Chicago Press, 1924), 83-84.

13 Strabo, *Geography*, trans. H.L. Jones (London: Loeb Classical Library 16), 1. Arian, Anabasis, trans. P. A. Brunt and E. I. Robinson (London: Loeb Classical Library 7), 17.
The nature of the classical accounts has led some to argue that Xerxes was falsely accused. Schmid and George maintain there was clear archaeological evidence for the ziggurat's destruction during Xerxes' rule. H. Schmid, Der Tempelturm Etemenanki in Babylon, Baghdader Forschungen 17 (Mainz: Philipp von Zabern, 1995). A. R. George, "The Tower of Babel: Archaeology, History and Cuneiform Texts," Archiv für Orientforschung 51 (2005-2006), 23-26.

Babylon in 332 B.C. but died there the following year before his project to rebuild the ziggurat was completed.[14] [15] Babylon's political and economic importance subsequently declined, although substantial archaeological remains and texts suggest that urban life continued into the Parthian period (150 B.C. to A.D. 226).[16] In the first centuries of the new millennia Babylon's remaining temple academies were among the last places where cuneiform was read or written.

Apart from a brief interlude of Roman dominance, Mesopotamia remained under largely Persian control until the Arab conquest in the seventh century A.D.. Settlements at Babylon continued through the Parthian, Sasanian, and early Islamic period. The direct local successor settlement was al-Hillah, which was built using quantities of Neo-Babylonian baked bricks.

Abandonment and Rediscovery: Late Antiquity–Nineteenth Century

Babylon's transition from a thriving metropolis to abandoned ruins, to a valued archaeological site took centuries. It involved the collapse of mud-brick structures, cycles of building atop earlier structures, and the accumulation of rubbish deposits. The massive tells that now shape the site's landscape are the product of these processes.

Although Babylon appears in medieval Arab geographies and European travel accounts, there are few indications of digging at the site. The only exception was the Arab reference to Babylon as the place where people remove its good baked bricks. Arabic sources refer to the larger area of Babil, to the ancient city itself as once consisting of seven parts, and to the known location of the ruins. Its ancient kings were according to the Arabic sources said to have been Canaanites, Nabateans, or Chaldeans, or were sometimes referred to as Nimruds. The first Nimrud built the tower in Babil, the Ṣarḥ. One of the famous rulers was Buht Nassar (Nebuchadnezzar). It was complained that Babil was a city of sinners and drunks, but it was also praised as the pearl in a necklace.[17]

From the twelfth century onward, European travellers visited and wrote about Babylon. Foreign visitors were rare but twelfth and thirteenth century accounts are strikingly similar, interpreting the ruins as a confirmation of biblical prophecy, often identifying Birs Nimrud (Borsippa) as the remains of the Tower of Babel, and making frequent note of lizards and snakes, perhaps also echoing biblical prophecy.[18] Later travel accounts (fifteenth and sixteenth century) likewise mention no substantial digging at Babylon while noting how little there was to see on the surface beyond the deserted mounds, alongside the site's 'loneliness and desolation'.[19] For local villagers and travellers on the road between Baghdad and al-Hillah the sight of crumbled walls bearing dragons no doubt prompted claims that the ruins embodied black magic and sorcery.

More detailed, illustrated accounts of Babylon began to appear in the seventeenth century. The Roman aristocrat Pietro della Valle copied cuneiform inscriptions, composed a site description, and made tentative soundings, recovering small numbers of tablets and seals.

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14 Strabo, Geography 16, 1 and Arian, Anabasis 7, 17.

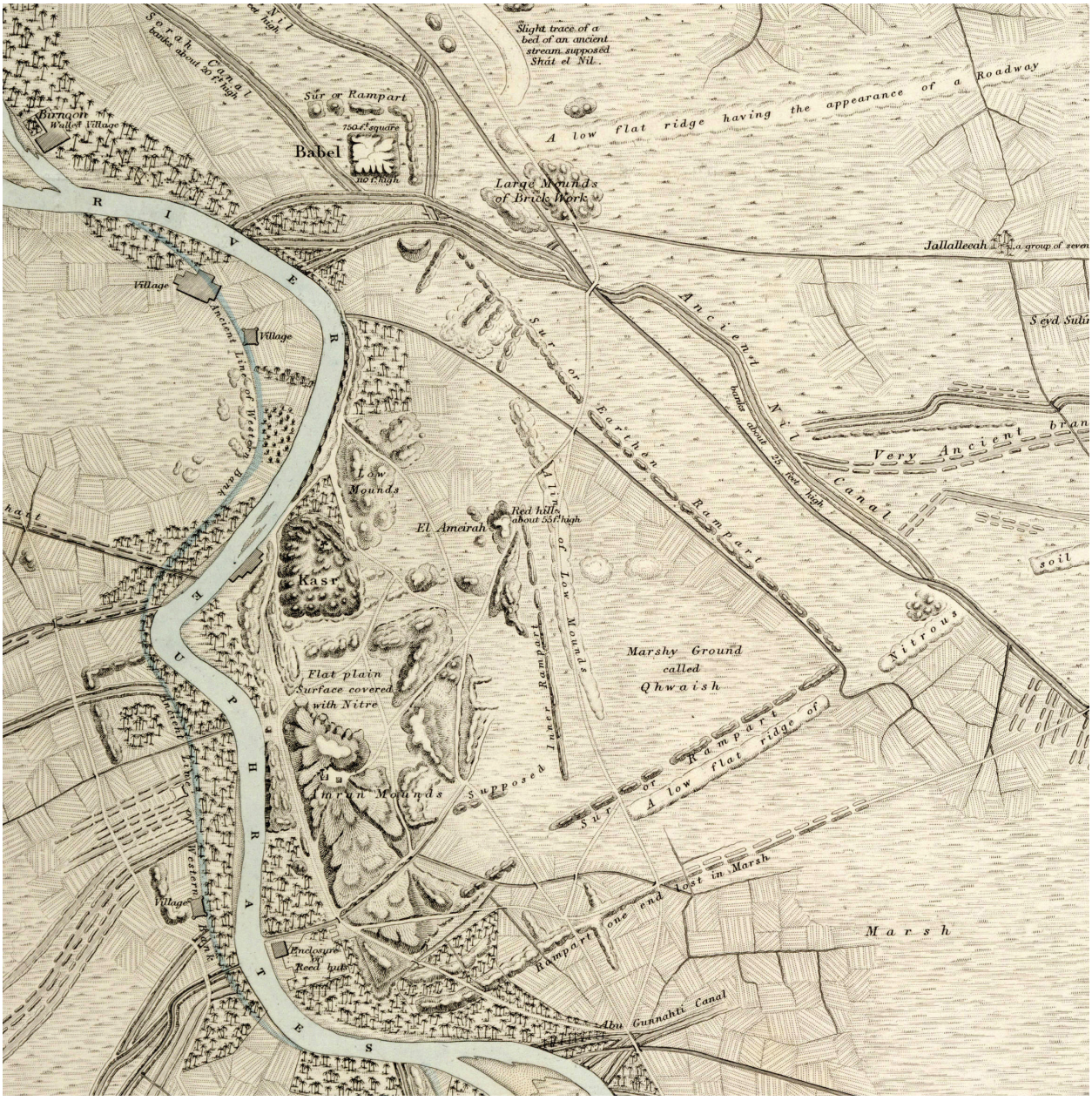
15 George, "The Tower of Babel," 27-28.

16 For a short overview of Seleucid and Parthian Babylon, A. Invernizzi, 'Les dominations Grecque et Parthe. In B. André-Salvini, ed., Babylone (Paris: Musée du Louvre Éditions/Hazan, 2008), 250–58. For all things Hellenistic Babylon, T. Boiy, Late Achaemenid and Hellenistic Babylon (Leuven: Peeters, 2008). For a detailed report on the archaeology, F. Wetzel, E. Schmidt and A. Mallwitz 1957, Das Babylon der Spätzeit. WVDOG 62. Berlin: Gebr. Mann Verlag. See also H. Klengel 1962. 'Babylon zur Zeit der Perser, Griechen und Parther,' Forschungen und Berichte 5: 40–53.

17 C. Janssen, Babil the City of Witchcraft and Wine (Ghent: University of Ghent, 1995).

18 Travellers differed on the Tower of Babel's location, noting the site of Birs Nimrud (ancient Borsippa) and that of 'Aqar Quf (ancient Dur Kurigalzu), near Baghdad.

19 C. J. Rich, Narrative of a Journey to the Site of Babylon... Edited by his Widow (London: Duncan and Malcolm, 1839), 27.



W.B. Selby's 1859 map of Babylon.

Although archaeology would not be elaborated as a discipline for another 200 years, Della Valle's account of the site was the most detailed yet produced, and its dissemination in Europe aroused scholarly interest.[20]

During the eighteenth century foreign visitors and modest excavation became more common. These included the Arabist Jean Otter (1743) whose account cites the Quranic mention of Harut and Marut.[21] Carsten Niebuhr (1765) fixed Babylon's exact geographical coordinates. The French

20 On Pietro della Valle see A. Invernizzi, "Discovering Babylon with Pietro Della Valle," P. Matthiae, A. Enea, L. Peyronel, and F. Pinnock, eds. Proceedings of the First International Congress on the Archaeology of the Ancient Near East (Rome: Universita degli Studi di Roma, 2000), 643-649; A. Invernizzi, ed., Pietro della Valle, In viaggio per l'Oriente: le mummie, Babilonia, Persepoli. (Alessandria: Edizioni dell' Orso, 2001). Don Garcia de Silva y Figueroa may have made an earlier, unpublished transcription though Delle Valle's copy of a Persepolitan inscription that was the first to be disseminated.

21 J. Otter, Voyage en Turque et en Perse. Avec une Relation des 3Expéditions de Tahmas Kouli-Khan 2 (Paris: Chez les Frères Guerin 1768), 209-11.

Abbé Joseph de Beauchamp, who visited Babylon twice in the 1880s, discovered an unbaked wall, sixty feet thick, running parallel to the river. André Michaux, (1783-4) found the so-called Caillou Michaux, a Babylonian *kudurru* (a stone monument recording a land grant) dating to c. 1100 B.C. and published the inscription, the first to be widely circulated in Europe. Claudius James Rich, East India Company resident at Baghdad, visited Babylon in 1811 and 1817. His *Memoir on the Ruins* features the first detailed map of Babylon, including the site's major mounds, a clear impression of the eastern portions of the outer city wall, of al-Jimjmah and Annanah villages.[22]

Other interests meanwhile shaped Babylon, since it was mined for construction materials to reuse in other structures at various points in time. Al-Hillah was built using baked bricks from the site as were many other settlements and structures, including the nineteenth-century al-Hindiya Barrage.[23] The areas of the Southern Palace and ziggurat were considerably diminished, as both contained quantities of baked bricks and are located near the river for easy transport. This digging coincidentally led to knowledge of the ancient mounds' composition, as an account recorded by the late-eighteenth-century visitor Joseph Beauchamp demonstrates.[24]

The era of large-scale site excavation in Mesopotamia began in 1842 with Paul-Émile Botta, the French Consul at Mosul, at Khorsabad. Large-scale excavations by Botta and Austen Henry Layard in Assyria were followed by more intensive exploration and excavation throughout Mesopotamia in the second half of the nineteenth century. French and British collectors, often consular agents like Botta, were charged with filling their countries' grand museums and providing the objects and inscriptions needed to study Near Eastern civilizations. Private collectors also helped fuel a growing international market for artifacts.



Hormuzd Rassem (1826–1910), engraving from a Philip Henry Delamotte photograph.

Late nineteenth-century excavations at Babylon and the nearby sites of Borsippa and Sippar focused on recovering cuneiform tablets to supply the emerging field of Assyriology. Hormuzd Rassam, the British Museum's agent, conducted excavations at Babylon (1879–82) and elsewhere. His digs were left in the charge of local supervisors and, aside from the desired many thousands of cuneiform tablets, little was documented.[25]

22 C. J. Rich, Memoir on the Ruins of Babylon (London: Longman, Hurst, Rees, Orme and Brown and J. Murray, 1815). C. J. Rich, Second Memoir on the Ruins of Babylon: Containing an Inquiry into the Correspondence Between the Ancient Description of Babylon and the Remains Still Visible on the Site (London: Longman, Hurst, Rees, Orme and Brown, 1818); Rich, Narrative of a Journey to the Site of Babylon (1839).

23 J. E. Reade, "Disappearance and Rediscovery" I. L. Finkel and M. J. Seymour, eds. Babylon: Myth and Reality (London: British Museum Press 2008a), 20. A block of structures in al-Hillah's old city district of Sob as-Surgayah (small bridge) were built from Babylon bricks.

24 Rich, Narrative of a Journey to the Site of Babylon (1839), 301–3.

25 Rassam dug at nearby Sippar and Borsippa. See J. E. Reade, "Rassam's Babylonian Collection: The Excavations and the Archives," introduction to E. Leichty, Catalogue of the Babylonian Tablets in the British Museum Vol. 6 (1986a) xii-xxxvi; J. E. Reade,"Rassam's Excavations at Borsippa and Kutha, 1879-82," Iraq 48 (1986b): 105-116, pls. XIII-XIX; J. E. Reade, "Hormuzd Rassam and his Discoveries," Iraq 55 (1993): 39-62; J. E. Reade, "Tablets at Babylon and the British Museum" I. L. Finkel and M. J. Seymour eds. Babylon: Myth and Reality (London: British Museum Press 2008b), 74-80.

1899–1917: Deutsche Orient-Gesellschaft and the Vorderasiatisches Museums Excavations

The Deutsche Orient-Gesellschaft (DOG), founded in the late nineteenth century, conducted together with the Royal Museums in Berlin the first systematic excavations at Babylon, using methods that set new standards for excavation and recording in Mesopotamia. The Society's goal was to match the discoveries of the British and French in the Near East, and particularly the spectacular Assyrian discoveries of Botta and Layard. Thanks to the efforts of the German archaeologist Robert Koldewey, who directed the Babylon excavations, the Society is credited with recovering a spectacular legacy of monumental art and a quantity of cuneiform tablets to advance German academia's studies and display in German museums.[26] Koldewey's excavations were unprecedentedly ambitious, covering large swathes of Babylon's inner city. The excavations' findings form the basis of our knowledge of ancient Babylon's topography.



Robert Koldewey (1855–1925).

Koldewey uncovered the Ishtar Gate and Processional Way, part of Esagila, arguably the most important temple in the Mesopotamian world, and remains of Etemenanki, the ziggurat, *aka* the Tower of Babylon. Excavations revealed the palaces of the Neo-Babylonian kings, the city's legendary fortifications and several other major temples. Koldewey believed that he had also identified the site of the Hanging Gardens (the 'vaulted building' within the Southern Palace), though his proposal has since often been discounted and the gardens' location, form, and purported existence remain disputed.[27]

The Deutsche Orient-Gesellschaft's subscribers ranged from provincial clergymen to wealthy industrialists and the Kaiser himself. Wilhelm II, a passionate enthusiast for ancient Near Eastern history and archaeology, contributed substantial financial support. The Society's work was seen as enhancing not only knowledge, but also the imperial glory and cultural stature of a young, unified German state.[28]

Despite the challenges facing nineteenth-century excavators in remote locations, Babylon was a tempting prize for Germany, which had come late to imperial Europe's cultural competition in Mesopotamia. Robert Koldewey had visited Babylon twice, (1887 and 1897) prior to the Society's founding, and brought examples of glazed baked brick fragments to Berlin, using these to argue that major excavations at Babylon would produce the sought-after spectacular results. Koldewey won the support of Richard Schöne, Director-General of the Royal Museums, and the Babylon mission was launched.

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26 F. N. Bohrer, 2003. *Orientalism and Visual Culture: Imagining Mesopotamia in Nineteenth-Century Europe* (Cambridge: Cambridge University Press 2003), 280. M. J. Seymour, *Babylon: Legend, History and the Ancient City*, (London and New York: I. B. Tauris, in press).

27 S. Dalley 1994. 'Nineveh, Babylon and the Hanging Gardens: Cuneiform and Classical Sources Reconciled.' *Iraq* 56: 45–58, and J. E. Reade, 'Alexander the Great and the Hanging Gardens of Babylon.' *Iraq* 62: 195–218.

28 J. S. McMurray. *Distant Ties: Germany, the Ottoman Empire, and the Construction of the Baghdad Railway*, (Westport, CT: Praeger Publishers, 2001), 2. While Babylon was being excavated, the German Government contributed to the Ottoman Empire's construction of the Baghdad-Basra railway, part of a larger rail system linking Berlin to the Persian Gulf. The route was left unfinished until the late-1920s during British occupation when it cut through Babylon destroying archaeological deposits. The railway line was shifted east in 1986 as part of the Revival of Babylon project.

A section of the Processional Way was excavated first (1899). Work at the Northern and Southern palaces began in 1900, when the Ninmah Temple was also excavated and digs begun at Esagila. Ishtar Gate was mainly excavated in 1902. Work on the inner city wall began in 1904.

One of Koldewey's aims was to establish the location of the outer city walls, which had yet to be identified and mapped. Much of the work at the outer wall took place in 1907. This work determined that the outer walls are Neo-Babylonian, reflecting the city's size at its height in the sixth century B.C., its boundaries continuing westward 500 meters from the Shatt al-Hillah. Koldewey's plan of the outer city walls still informs the demarcation of Babylon's site boundaries.

The excavations of areas with private houses at the Merkes took place in 1907–12 and digging around the ziggurat Etemenanki began in 1908. During 1910-11 the Ishtar Temple was excavated, the course of the outer walls of Esagila identified, and the pylons of a baked brick bridge that once crossed the Euphrates unearthed.[29]

Although the excavation plan shifted throughout the work, it focussed on the Neo-Babylonian city core with its monumental buildings. The floor plans of vast palaces and temples were revealed and recorded, as well as the grand ceremonial site of the Ishtar Gate and Processional Way. The scale of the excavations was staggering with the Southern Palace alone encompassing some five hundred rooms on the ground floor. Little information was gleaned on the city's pre-Nebuchadnezzar history; the combination of massive amounts of Neo-Babylonian material and a high water table made the site's earlier levels inaccessible.

Koldewey's findings suggest that Babylon's ground water levels were high in antiquity, causing Nabopolassar and Nebuchadnezzar II to repeatedly raise the level of the Processional Way and Ishtar Gate. The rising water table, discussed elsewhere in this management plan, continues to impact the site's conservation.



Ishtar Gate emerging during German excavations, 1902.

29 O. Reuther, *Die Innenstadt von Babylon (Merkes).* Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 47 (Leipzig: J. C. Hinrichs, 1926). For an excavation timeline, 1899-1912, see R. Koldewey, *The Excavations at Babylon* (London: Macmillan, 1914) vi-viii.



Deutsche Orient-Gesellschaft excavations at the Southern Palace beside the Processional Way during the spring of 1914.

Koldewey's team developed and refined the art of tracing and recording earthen architecture, recording their results in a highly precise fashion. Detailed section drawings tracking stages in the buildings' development and marking the relationships between architectural elements laid the groundwork for the first stratigraphic studies of Mesopotamian archaeology.[30]

The Deutsche Orient-Gesellschaft's documentation standards were ahead of their time. Descriptive reports on the city walls, inner city, Ishtar Gate and the Esagila-Etemenanki complex include large-format, highly detailed architectural and topographical illustrations of a kind not produced for any previous Mesopotamian excavation.[31] Koldewey's book on the site also differs from any predecessor's, illustrating excavation details while providing little anecdotal material on contemporary Iraq.[32] This approach reflects less the contrast between German scholarship and that of Koldewey's British and French predecessors than archaeology's development as a discipline and the growing influence of the natural sciences on a modern world discovering its origins.

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30 M. G. Micale and D. Nadali, "Layer by Layer…" Of Digging and Drawing: The Genealogy of an Idea," R. D. Biggs, J. Myers and M. T. Roth, eds. *Proceedings of the 51st Rencontre Assyriologique Internationale, Held at the Oriental Institute of the University of Chicago, July 18-22, 2005*, Studies in Ancient Oriental Civilization 62 (Chicago: The Oriental Institute of the University of Chicago, 2008), 405-414.

31 See R. Koldewey, *Die Tempel von Babylon und Borsippa*, Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 15 (Leipzig: J. C. Hinrichs, 1911); R. Koldewey, *Das Ischtar-Tor in Babylon*, Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 32 (Leipzig: J. C. Hinrichs, 1918); R. Koldewey, *Die Königsburgen von Babylon, Vol. 1-2*; edited by F. Wetzel, Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 54 and 55. (Leipzig: J. C. Hinrichs, 1931-1932); F. Wetzel, *Die Stadtmauren von Babylon*, Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 48 (Leipzig: J. C. Hinrichs, 1930); F. Wetzel and F. H. Weißbach, *Das Hauptheiligtum des Marduk in Babylon: Esagila und Etemenanki*, Wissenschaftliche Veröffentlichung der deutschen Orient Gesellschaft 59 (Leipzig: J. C. Hinrichs, 1938).

32 R. Koldewey, *Das wieder erstehende Babylon*, 1913, 1925, 1990 (revised by B. Hrouda), *The Excavations at Babylon*, 1914.

Post-war Changes and the Fate of German Finds

The advent of the First World War did not immediately stop the excavations at Babylon, though their scale was greatly reduced. Koldewey continued to work until 1917, when he was obliged to leave as the British Mesopotamia Expeditionary Force approached. He died in 1925, aged 70. The unexpected halt of excavations negatively affected the site, as the exposed mud-brick structures suffered erosion and collapse. The conservation demands resulting from exposure and reconstruction on such a vast scale were not recognized at the time, and successive Iraqi governments have struggled with this legacy.



Sorting Ishtar Gate fragments, Vorderasiatisches Museum, Berlin.

A first shipment of some of the most important artifacts was sent 1915 to Istanbul and divided between Istanbul and Berlin. However, the majority of the artifacts from Babylon remained in the excavation house during the war. Unfortunately, several of the most complete and best looking objects were stolen from the excavation house during the war and soon started to appear on the antiquity market; some of them could later on be found in a number of different collections.

In 1926, there was a division of the artifacts from the German excavation still in Iraq between Baghdad and Berlin, including some six hundred crates containing mostly Babylonian glazed brick-relief fragments.[33] In 1927 the material finally reached Berlin, where it was used for the Processional Way and Ishtar Gate reconstructions that are still a main attraction of the Vorderasiatisches Museum. Walter Andrae, from 1928 the museum's director, had helped secure the material, traveling to Iraq in 1926 to negotiate the division of finds.[34]



Reconstructed Ishtar Gate, Vorderasiatisches Museum, Berlin.

Andrae also supervised the reconstructions. The glazed brick fragments were desalinated, and, where possible, reassembled to form lions, bulls, dragons and floral motifs and supplemented with modern, fired bricks baked in a special kiln. The finished reconstructions give a cohesive and powerful impression of the ancient monuments' appearance, yet the visitor can distinguish modern from ancient materials. The reconstructions opened to the public in 1930 to great acclaim.[35]

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33 O. Pedersén, *Archive und Bibliotheken in Babylon*, Abhandlungen der Deutschen Orient-Gesellschaft 25 (Berlin: Deutsche Orient-Gesellschaft, 2005), 6-7.

34 Gertrude Bell, then Iraq's Director of Antiquities, had made the offer to restore the finds to Germany, but died while Andrae was still en route and did not participate in the actual division. According to SBAH sources, the crates were stored in the Khan al-Muhamidiyya north of Babylon until they were collected and sent to Germany. W. Andrae, "Reise nach Babylon zur Teilung der Babylon Funde," *Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin* 65 (1927b), 7-27.

35 Joachim Marzahn, "Von der Grabung zum Museum—Babylon wird Sichtbar," J. Marzahn, G. Schauerte, B. Müller-Neuhof and K. Sternitzke, eds. *Babylon: Wahrheit* (Berlin: Hirmer / Staatliche Museen zu Berlin, 2008a), 97. Many fragments, too small and damaged, were never reassembled. To this day they remain in storage in the basement of the Vorderasiatisches Museum.



Downscaled wooden replica of Ishtar Gate shortly after erection, c. late 1950s.

1958–1978: Iraqi Work at Babylon

Iraqi government initiatives to redevelop Babylon began in the 1950s. The work had a political aspect: following the 1958 military coup that overthrew Iraq's monarchy, General 'Abd al-Karim Qasim (Iraqi Prime Minister until 1963) used the ancient past to boost nationalist sentiment. He adopted the Mesopotamian symbol for the sun as Iraq's national icon; a simplified version appeared on the Iraqi flag between 1959 and 1963.

In 1951, Baghdad University accepted its first class of students in the Archaeology and Civilization Department. By the mid-1950s these new graduates were traveling to Europe to obtain higher degrees. They returned to teach others at the university and followed Iraqi Khalid Al-'Adhamy and Fouad Safar's 1940s excavations at Ishtar Gate and the Processional Way with further archaeological investigations around Babylon. This work seems to have focused largely on furthering inquiries suggested by Robert Koldewey.[36]

Iraqi archaeologists typically chose to address Koldewey's unearthed ruins, exposed for more than 60 years, by completely reconstructing rather than conserving them.[37] The skilled labor-intensive demands of earthen architecture conservation remain one of the most pressing and challenging aspects of the site's management today.

Visitor-based infrastructure work began in 1958 under Taha Baqir. The smaller-size wooden replica of the Ishtar Gate's façade was constructed as an entrance to a garden courtyard, which fronted the earliest incarnation of the Babylon Museum. Although visitation records from this period are lacking, it is likely that this infrastructure formalized earlier informal services provided by people from the surrounding villages to foreign excavation workers and the occasional visitor.

Work on the original in-situ Ishtar Gate aimed to expose, restore, and conserve the unglazed brick-relief surfaces of the monument's foundations and replace the lower courses of masonry. The interventions were substantial, including the transposition of entire brick-relief animals from one part of the structure to another.[38] Concrete staircases and bulwarks at both ends of the

36 WMF interviews with Eman Mohsen, 2012.

37 Ibid.

38 WMF interview with Wahbi Abdel Rezak, 2011.
Roberto Parapetti, "Babylon 1978-2008 A Chronicle of Events in the Ancient Site," International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq Sub-Committee on Babylon *National Reports Annex 5* (2008), 5.





Processional Way north of Ishtar Gate, 1980s reconstruction and site fragments found in adjacent rubble heaps.

monument were installed. A section of the Processional Way was re-excavated, unearthing glazed brick fragments of rows of lions; an example was reconstructed and displayed in the new site museum.[39]

Iraqis had established their own trained archaeologists by around 1954, mainly through studies overseas and Baghdad University graduates, who began initiating projects. Between 1959 and 1966, the Ninmah Temple was re-excavated and reconstructed by the General Department of Antiquities using modern mud brick.[40] Starting in 1963, work focused on the re-excavation and partial restoration of the Southern Palace, particularly the throne room.[41] The area in the north-eastern corner of the Southern Palace that Koldewey considered the site of the Hanging Gardens was partially reconstructed. In 1969, the Southern Palace was more extensively restored and earth removed from around the Marduk Gate, Ishtar Temple, and Greek Theatre.

In 1957–1962, H. Schmid excavated for the German Archaeological Institute (DAI) at the Etemenanki in order to solve some of the problems connected with that building and to secure material for a proper interpretation of the building. J. Schmidt from the same institute continued to unearth a large building on the western section of the Eastern Tell, near the river.[42]

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39 The museum was later renamed the Nebuchadnezzar Museum during the Revival of Babylon project in the 1980s. A substantial number of these glazed-brick fragments were deposited with modern building debris behind Nabu-sha-Hare Temple and rediscovered during site clean-up work sponsored by WMF in 2011. The material, catalogued and stored, was stolen from a storage room in the Nebuchadnezzar Museum in 2012. Parapetti, "Babylon 1978-2008," 33.

40 Parapetti, "Babylon 1978-2008," 133.

41 F. Al-Wailly, Introduction. *Sumer* 20 (1964).

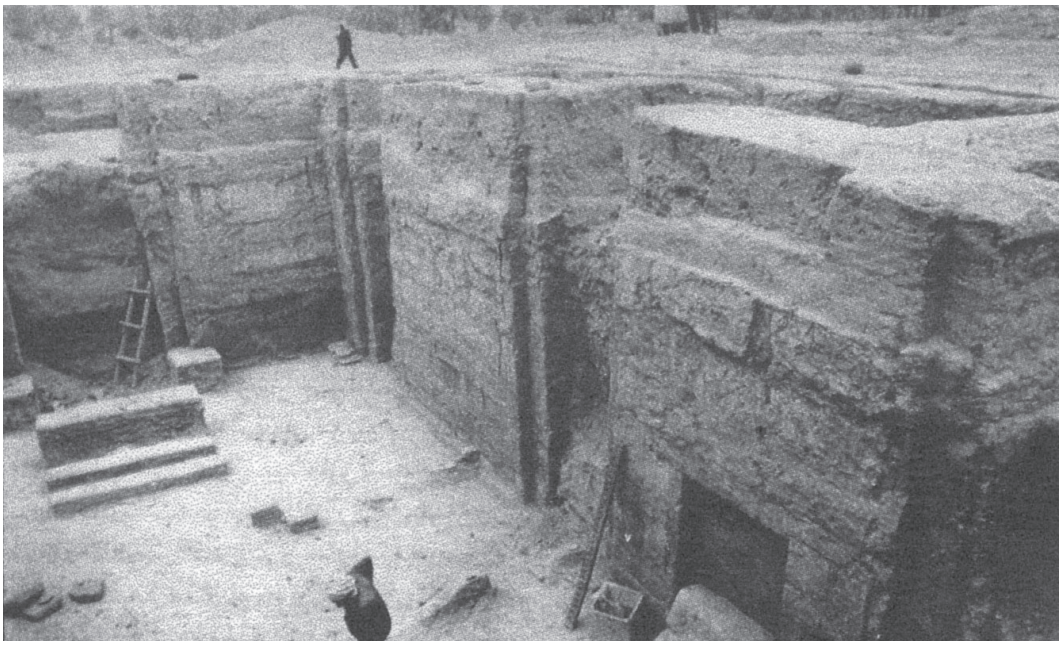
42 H. Schmid, *Der Tempelturm Etemenanki in Babylon*, Baghdader Forschungen 17 (Mainz: Philipp von Zabern, 1995). J. Schmidt, "Das Bīt Akītu von Babylon," *Baghdader Mitteilungen* 33 (2002), 281-330, Pls. 1-4.

In the 1970s, interventions grew more ambitious. Reconstruction of the Greek Theatre began, with the orchestra and two tiers of seating completed by 1978. There were several Iraqi and foreign excavations during this period, with teams from Germany and Italy working at Babylon.

In 1974 the Italian-Iraqi Institute of Archaeology in Baghdad became involved in developing plans for research and restoration at Babylon. The Italian archaeologists were consulted on the problems of erosion, the high water table and salinization at the site and on the possibilities for reconstructions and site presentation.[43] In 1977 the Italian team began revisiting Koldewey's findings, which resulted in a substantial revision of dating and stratigraphy in the area of the ziggurat Etemenanki.[44] This period of excavation marked the beginning of a long-term Italian project to document Babylon's topography using aerial, and later, satellite imagery; the Centro Ricerche Archeologiche e Scavi di Torino (CRAST) continues this work today.

From 1979 to 1980 the Iraqi antiquities authorities excavated the Nabu-sha-Hare Temple.[45] The discovery was accidental and occurred during excavations targeting the southern extension of the Processional Way. This well-preserved temple had been rebuilt by the Assyrian king Esarhaddon (680–669 B.C.) as part of the city's restoration following the destruction wrought by Sennacherib in 689 B.C. Nebuchadnezzar II probably carried out further work and restoration.[46]

During site work conducted by the Iraqi antiquities, floor plans of two temples were discovered, one directly above the other, the first being removed to uncover the flooring of the earlier structure. Over 3000 clay tablets, mainly temple school texts were also uncovered. Unfortunately, publication of the Nabu-sha-Hare Temple excavation was limited and documentation remains with SBAH staff individuals who are wary of sharing the data for fear of being denied the rights of publishing their discoveries.[47]



Courtyard of Nabu-sha-Hare Temple during 1980 Iraqi excavations with entrance to the cella in foreground.

43 G. Bergamini, "La mission italienne, 1974-1989," ed. B. André-Salvini, *Babylone.* (Paris: Hazan / Musée du Louvre Éditions 2008), 529.

44 G. Bergamini, "Levels of Babylon Reconsidered," *Mesopotamia 12* (1977), 111-152.
On this topic see also Schmid 1995; George 2005-6.

45 Danial Ishaq, "The Excavations at the Southern Part of the Procession Street and Nabu ša Ḫare Temple," *Sumer* 41 (1981): 30-33. Muayad Said Damerji, Babylon (Amman, privately published 2010), 87-94.

46 Ishaq, 1983, 33. Iraqi archaeologists at the time speculated that Nebuchadnezzar, who claimed to have built Nabu-sha-Hare Temple, more likely only made repairs and additions to an existing structure. Daniel Ishaq subsequently left Iraq for studies in England and never completed detailed excavation reports for Nabu-sha-Hare Temple.

47 WMF interviews with Ahmed Kamel, 2013.



Saddam Hussein monument at Babylon's north entrance, vandalized after 2003 (right), lately replaced (left) with portrait of Ali ibn-Abi Talib (Imam Ali).

1980s: The Revival of Babylon Project

Despite the scale of Saddam Hussein's interventions, including the reconstruction of many ancient monuments, documentation of the work is nearly non-existent, posing an additional challenge to conservation efforts. Saddam Hussein's plans for Babylon were executed essentially by verbal edict, making information regarding them and the process of their implementation difficult to obtain. Archival materials kept at the site's Babil Provincial Inspectorate office were looted and/or destroyed in the upheavals following the regime's downfall.

The following section draws on existing documentation, witness accounts, condition assessment studies conducted by or on behalf of WMF, and deductions based on observations of the site as it appears today.

Early plans and implementation strategies

In 1974 a major international meeting had been planned under the heading 'Project for the Archaeological Revival of Babylon City.' This effort marked the Iraqi authorities' first attempt at comprehensive site management and included the following objectives:

- Lower the water table and reducing/reversing salinization at the site;
- Re-expose the Neo-Babylonian monuments;
- Reconstruct the ziggurat, inner city walls, and other ancient buildings;
- Develop visitor itineraries.[48]

This plan was revised in 1978, partly owing to the need to solve groundwater issues. As the high water table prevented excavating materials associated with Hammurabi, the SOAH under Saddam Hussein chose to reconstruct Babylon.[49] Then Director General of the SOAH Muayad

48 Parapetti, "Babylon 1978-2008," 2008.

49 WMF interviews with Maha Sayed, 2012.

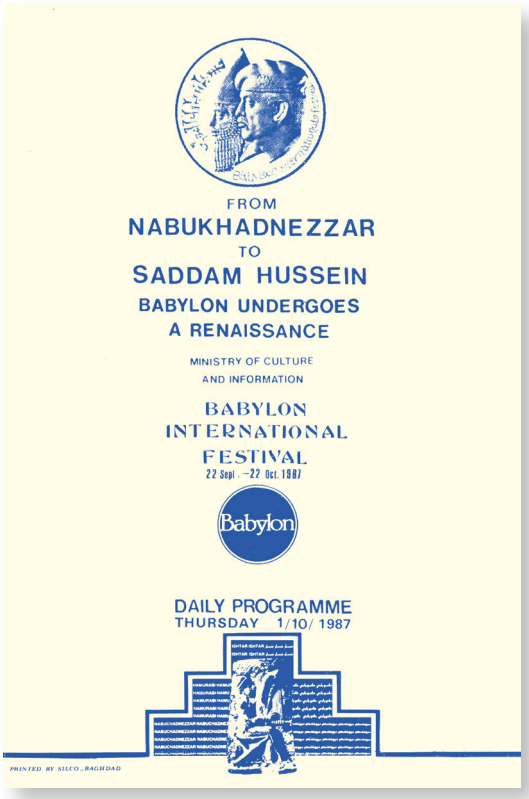
Said Damerji claimed that Babylon in the present stage was one of the simplest of archaeological sites to decipher since it contained archaeological layers of only one period, i.e. Neo-Babylonian. While lacking a comprehensive site management strategy, subsequent interventions were designed to bring Nebuchadnezzar II's Babylon to life, and to facilitate visitors understanding and enjoyment of it.[50]

In 1978 the SOAH proposed to extend the 1974 priorities to include:

- Hydrological and geophysical studies;
- The possible diversion of the Shatt al-Hillah's course;
- Conservation and restoration of the excavated buildings;
- Creation of museums;
- Conservation of the landscape and ecology.

The Revival of Babylon Project as conceived in 1978 combined elements of archaeological research with nationalist propaganda. The political interest in restoring Babylon intensified with Saddam Hussein's rise to power and as the Iran-Iraq War (September 1980 to August 1988) became a protracted conflict. By the middle of the war, Hussein was keen to distract public attention from a stalemate that increasingly consumed resources and lives; the work at Babylon provided a diversion.

During the mid-1980s, international financial support allowed the military to rearm, and the country's infrastructure to be revived. In a move to boost domestic support for the war, money was also allocated to revitalize Iraq's rich history and culture. Across the country the regime invested in archaeological sites, and Babylon played a key role in this venture.[51]



For Saddam Hussein, Babylon's history was a touchstone for legitimizing his own credentials. Accordingly, Saddam concluded there were many historical parallels to be drawn between ancient Babylon and contemporary politics. According to Saddam, it was Nebuchadnezzar II who embodied the greatness of the Iraqi spirit. It was he who restored Babylon after devastation.[52] Not only did Nebuchadnezzar II reconstruct the city, he also expanded the empire, conquering Judah and Jerusalem, destroying Solomon's Temple and ultimately, according to the Bible, sending Jews into exile. Eventually, the Persians, through the efforts of Cyrus the Great, brought an end to Babylon's empire and ushered in centuries of foreign dominance. By the mid-1980s while Iraq was at war with modern-day Persia (Iran) Saddam Hussein concluded Babylon must be reborn again and he, like Nebuchadnezzar II before him, was the person to lead his country back to greatness.

In 1985, Saddam issued a directive to expand and accelerate work related to the Revival of Babylon project, by including the Babylon International Festival, whose motto was 'from Nebuchadnezzar II to Saddam Hussein, Babylon Undergoes a

50 Muayad Said Damerji, "On the Dimensions of the Archaeological Revival of Babylon Project," *First International Scientific Conference on Babylon, Assur and Himreen* (December 1978), 40-44. It was later reprinted in *Sumer* 35, Nos. 1 and 2 (1979).

51 WMF interviews with Eman Mohsen, 2012.

52 Ibid., 2012.

Renaissance.'[53] A large-scale program of reconstructions was the priority and it had to be done quickly; Saddam Hussein wanted spectacular results to be displayed at the first Babylon Festival in 1987. This left little time for planning let alone the work itself. On-site accommodations were built for some SOAH staff and laborers. Egyptian and Sudanese architects, engineers and workers were recruited as many Iraqis were on the battle lines. All worked day and night to complete the reconstructions on schedule.[54] Political expediency affected the nature and quality of the work; documentation was minimal and the monuments suffered substantial, and in many cases, irreversible damage.

Huge expanses of Neo-Babylonian pavement in the Southern Palace courtyards and many ancient walls were destroyed to quickly access the buildings' foundations. The reconstructions were often built directly on ancient foundation walls and designed to reflect the 'Assyro-Babylonian style' used in the Deutsche Orient-Gesellschaft's reconstruction drawings.[55]

At the Ishtar Gate, cisterns were dug and a cement floor added on top of a layer of sand. The new floor, which cuts into the ancient walls, has since served to trap water, exacerbating dampness and saline damage to the monument. At the inner city wall, eroding lumps of massive earthen masonry were topped with modern, fired brick and cement mortar capping, a rigid and incompatible combination. The uneven sides were scraped vertical with earth moving machinery. These actions served to hasten the collapse of the historic remains.

Across the site, reconstructions and repairs used modern compressed and fired yellow bricks incompatible with the original masonry and occasionally, as per ancient tradition, stamped with the name of Saddam Hussein. By the late 1980s, everyone from the Director of Antiquities to the archaeologists on site was under enormous pressure to achieve timely and sensational results; following international





Ishtar Gate with rising damp damage at base (below) and 1980s concrete floor during its 2013 removal.

53 "Daily Programme for the Babylon International Festival" (Baghdad: Ministry of Culture and Information, 1 October 1987) cover.

54 WMF interviews with Elham Hashim Ali, 2011.

55 Parapetti, "Babylon 1978-2008," 134.



Lake Tammuz, one of three lakes dug into archaeological stratums with Mount Nissan in background.

charters and scientific standards was not a priority. Although the reconstructions have since been deservedly criticized, they should be understood in the context of both an unremittingly tense situation for the SOAH and a genuine desire to make the site intelligible to the visitor.

Aside from the reconstructions, the largest and most damaging of the Saddam Hussein-era works were gigantic landscaping projects: artificial lakes, three large hills, and the digging of the al-Hawliyah Canal, all of which had inestimable consequences for the site's archaeological remains.

The building of Mount Saddam in the late 1980s entailed the destruction of the village of (Old) Kweiresh and the forced eviction of its inhabitants.[56] Located within Babylon's site boundaries, Kweiresh grew in response to the need for laborers during the Deutsche Orient-Gesellschaft excavations and subsequent generations likewise worked on archaeological digs.[57] Their existence adjacent to the core archaeological area heightened tensions with antiquities officials who accused villagers of looting artifacts. Subsequently, the proposed location of Mount Saddam was moved south and the village replaced to support a former palace and several other buildings, including a conference center serving the Babylon Festival.[58] The project also rerouted the Baghdad-al-Basra highway and railway around the site in 1986.

In preparation for the Babylon Festival some aspects of the Revival of Babylon project grew in scope while others fell by the wayside such as the rebuilding of the ziggurat and the lowering of the water table. As a result, water and salt damage was in fact exacerbated as building repairs produced new drainage patterns, blocked evaporation, and channeled water into parts of the monuments hastening their decay. Furthermore, the project's new water features flooded portions of the archaeological site.

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56 Michael Seymour interview with Sheikh Sadiq Mehdi 'Abbas, 2011. Mr. 'Abbas reported that villagers received 30 Iraqi dinars per m2 for their property, 1.5 dinars per acre for agricultural land and 7 dinars per date palm. Some villagers on the list for compensation received nothing.

57 The German mission house was in Kweiresh, and was later reused as a girl's school. Walter Andrae produced an informal record of village life while residing in the mission house. It was demolished for the construction of Mount Saddam.

58 WMF interview with Ahmed Kamel, 2013. For photographic comparison of this area in 1965 and 2002 see John M. Russell, "Report on Damage to the Site of Babylon, Iraq," study compiled for the Cultural Heritage Center, Bureau of Educational and Cultural Affairs (US Department of State, 2010), 46.



Ruins of Nebuchadnezzar's Northern Palace framing Saddam Hussein's palace on Mount Saddam.

Despite the pressures of the Iran-Iraq War, Iraqi and foreign archaeological missions were active during the 1980s. The Iraqi-Italian Institute of Archaeological Sciences worked from 1987 in the city district of Shuanna to revisit some of the conclusions of the Deutsche Orient-Gesellschaft while conducting topographic work to improve site mapping. Led by Giovanni Bergamini, the team's findings included more detailed knowledge of the likely processional route from the Urash Gate, along which the statue of Nabu would have traveled when entering the city from Borsippa for the New Year festival. Texts suggest that like the Processional Way, the level of this second street (a prolongation of the Processional Way) was raised substantially during the Neo-Babylonian period.[59] [60] This work was halted by the Gulf War (1990–1991) and not resumed.

Although foreign involvement at Babylon and major works of the Revival of Babylon project stopped, the Babylon Festival continued despite a dwindling budget and poor attendance. Iraqi archaeologists managed to continue digging at several sites. Excavations by the SOAH were mounted at residential areas in Merkes, the courtyard area of the Etemenanki complex and Tell al-Jimjmah. The Northern Palace was re-excavated and cleaned in 2001–02, but no reconstruction took place because too little evidence remained as to its appearance. Ruins of the Northern Palace remain in stark contrast to the wholesale interventions at the nearby Southern Palace.[61]

With international sanctions crippling the Saddam Hussein regime, the looting of archaeological site museums became commonplace. In 1995, the Nebuchadnezzar Museum at Babylon was robbed of nearly all its artifacts, an event that foreshadowed the even greater losses soon to come as a result of political instability.[62] Despite this, Iraqi archaeological investigation continued until 2003.

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59 G. Bergamini, "Preliminary Report on the 1987 Season of Excavations at Babylon, Iraq," *Sumer* 47 (1995), 33.

60 G. Bergamini, "Excavations in Shu-anna Babylon 1987," *Mesopotamia* 23 (1988), 5-17; G. Bergamini, "Preliminary Report on the 1988-1989 Operations at Babylon Shu-Anna" *Mesopotamia* 25 (1990), 5-12; Bergamini, "Preliminary Report on the 1987 Season of Excavations at Babylon, Iraq," 30-34.

61 WMF interview with Elham Hashim Ali, 2011; WMF interview with Ahmed Kamel, 2013.

62 WMF interviews with Hadi Gatea Musa and Abdel Hussein Ghaneim, 2010. Both SOAH museum managers at the time, they were falsely accused of the theft and put behind bars for nearly one year until all charges were dismissed. Theft at the Nebuchadnezzar Museum, along with similar incidents at other sites, was an act purportedly orchestrated by Saddam Hussein insiders. A number of the objects later appeared for sale on the black market.

2003–Present

(See *BM04, 'Existing Military Remains and Other Damage'* map)

The damage resulting from the Revival of Babylon project, Saddam's attempt to mimic royal building tradition was exacerbated by yet other historical reoccurrences as Babylon was sacked and later turned into a headquarters for military conflict. Following the Coalition Forces' invasion of Iraq in April 2003, the days between the retreat of Saddam's forces and arrival of Coalition Forces to the site were critical. Visitor facilities were looted and vandalized, leaving nothing of value. The SOAH Inspectorate's offices, library, museums, and excavation house were also robbed and damaged as Iraqi security and SOAH staff fled in fear of their lives.[63] Worse, by the arrival of the first Coalition Forces deployed at Babylon three weeks later, several archaeological remains had been damaged including Ishtar Gate.

Shortly thereafter Camp Alpha, established by American forces, grew to cover 150 hectares, with a helicopter base and barracks for 2,000 soldiers. The camp was located in the heart of the ancient city where recent physical alterations, like the canal, mounds and modern support facilities for the former palace of Saddam, offered strategic advantages.

Although a clean-up was conducted prior to evacuating the site in 2004, elements of the military base remain: expanses of compacted gravel, sandbags and HESCO Concertainers (whose contents are now spilling onto the site as the geotextile linings biodegrade) guard-towers, trenches, and large quantities of razor wire. Prior to the 2003 invasion a number of firing positions that had been dug by Iraqi military, apparently to protect Saddam's palace, still remain.[64]

In response to those events UNESCO organized a number of damage assessments and reports by different national and international scholars and institutions. The majority of the reports





Coalition Forces installations at Camp Alpha beside the reconstructed Southern Palace (below) and Nabu-sha-Hare Temple (right).

63 WMF interview with Elham Hashim Ali and Mohamed Tahir, 2011.

64 Russell, Report on the Damage to the Site of Babylon, 2010, 95-112.

focus on the damage observed at the end of 2004, mentioning both destruction caused by military activities and caused by erosion as well as the misuse of archaeological monuments. Based on a review of the site's condition, the 2009 UNESCO final report concluded with six recommendations:

1. The provisions of the Iraqi Antiquity laws should be observed on the site of Babylon.
2. The archaeological implications for the disturbed areas should be investigated and reported upon by the SBAH.
3. Based on the results of the assessment and aforementioned archaeological investigations, the SBAH should develop and implement a site management conservation plan for Babylon in close cooperation and consultation with the UNESCO International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq—Babylon Sub-Committee.[65]
4. Emergency interventions should be undertaken by SBAH and reported upon, including in particular the repair of the Ninmah Temple, Nabu-sha-Hare Temple, Ishtar Temple, and the inner city wall.
5. The SBAH should be called on to consider the partial reopening of the site.
6. All activities should be undertaken with a view to the nomination of Babylon for inscription on the UNESCO World Heritage List.[66]

With the departure of Coalition Forces, the SOAH, newly reconfigured in 2004 as Iraqi State Board of Antiquities and Heritage (SBAH), received control of Babylon but fear of violence, budget constraints, and a management vacuum prevented the organization from initiating activities. The site reopened to visitors in mid-2009.

World Monuments Fund (WMF) began work in 2005 with an off-site SBAH training program, and by sponsoring Stony Brook University of New York to assemble a GIS database for Babylon. The work involved digitizing existing maps and documentation to layer over satellite imagery. The land use map, compiled by Stony Brook, became the foundation for superimposing further data gathered from site surveys connected to the site management plan.



Despite SBAH protests, state contractors dig third utilities pipeline through Babylon in 2012.

65 Although the Babylon Sub-Committee has now been disbanded, the UNESCO ICC remains involved with progress at Babylon.

66 UNESCO, *Final Report on Damage Assessment at Babylon*, 20.



Ottoman era shrine of Amran ibn-Ali photographed in early 1900s and today with modern additions.

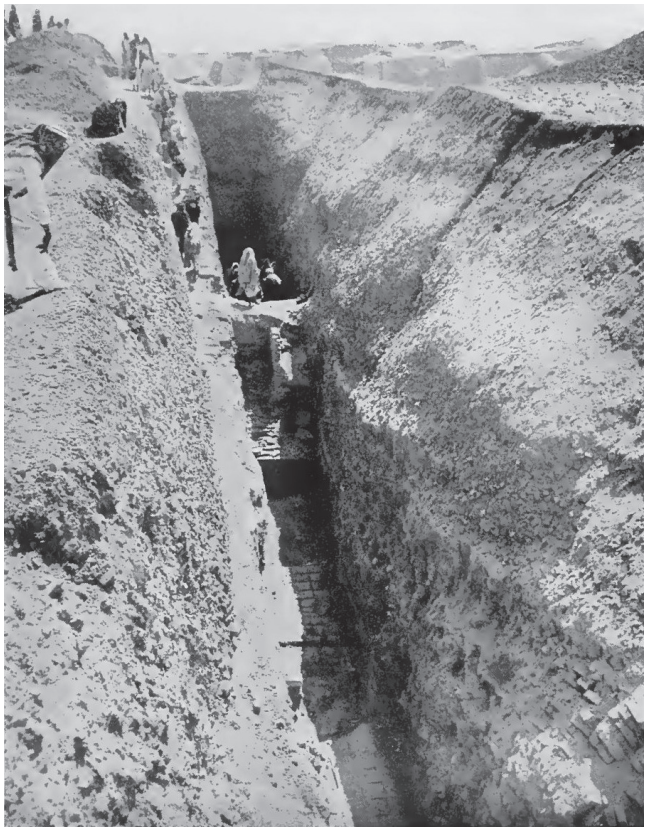
Since 2009, the SBAH has attempted to follow UNESCO's recommendations, and to establish the site's integrity by agreeing to and legally enforcing site boundaries under their jurisdiction. In partnership with WMF, the Future of Babylon project began with the main goal of producing a site management plan for Babylon as a cultural landscape and archaeological city that the SBAH can efficiently implement and maintain.

The site remains in jeopardy. Against the SBAH's wishes, the Iraqi Ministry of Oil installed an oil pipeline with permission of the Babil Governorate in 2012. The 50-cm oil pipeline was buried in a two meter-deep trench running 2.5 kilometers through the eastern half of Babylon (parallel to two previous pipelines laid in 1970s and 1980s). At the site's core, the Babil Governorate operates a wholly independent commercial hotel and conference center, an example of the ongoing conflicts between the SBAH, regional and national governments regarding site authority and stewardship, and at the shrine of Amran ibn-Ali religious institutions are pursuing an aggressive expansion of new auxiliary buildings outside of its historic enclosure walls. Meanwhile, residential encroachments inside the archaeological site, already problematic, accelerated after the collapse of civil authority in 2003 and continue unabated posing one of the most serious threats to the site today.

Current planning remains subject to uncertainty regarding stewardship; discussions continue regarding the construction of a hotel on the south hill (Mount Tammuz), commercial development and an amusement park south of al-Jimjmah and a telepherique transport system linking al-Hillah with the heart of the archaeological site, all projects that can undermine a successful World Heritage nomination. The SBAH has meanwhile outlined a series of future excavation priorities; primarily salvage activities targeting endangered remains (*see* Vol.2, Babylon's Archaeological Potential').

The Archaeological Record, Related Archaeological Archives, Myth and Legend

The vast collection of cuneiform texts from Babylon housed at the National Museum of Iraq (Baghdad), the Vorderasiatisches Museum (Berlin) and the British Museum (London), comprise a scholarly resource whose potential has only begun to be explored. Significant ancient texts related to the city's history include Tin.tir=Babylon, a topographic compendium with detailed information on the city and its temples; descriptions of the New Year Festival and its ritual activities; a geographical treatise featuring the earliest known map of the world and a wealth of mathematical, astronomical, astrological and medical documents.



Hormuzd Rassem's excavation trench, c.1880.

In the 1880s, Hormuzd Rassam's excavations to recover cuneiform texts for the British Museum produced the first large quantity of artefacts that left Babylon for the purpose of study. Robert Koldewey later excavated the largest corpus of material that now forms a major part of Vorderasiatisches Museum's collection.

Despite the scale of interventions in the late twentieth century, the largest concentrated archaeological and conservation implementation project in Iraq, documentation is nearly non-existent. Upheavals related to the collapse of the Saddam Hussein regime led to looting and destruction of most archival documentation related to SBAH activities at the site. The Babil Provincial Inspectorate and Babylon site offices were ransacked in the chaotic weeks between the retreat of forces backing Saddam Hussein and arrival of Coalition Forces. The lack of documentation poses challenges to new conservation activities.

The limited information now available includes a few blueprint drawings, project reports, and outmoded video footage at National Museum of Iraq (Baghdad).[67] Several senior SBAH employees possessing personal collections of photographs, drawings and reports, are reluctant to volunteer access, fearing recrimination they instinctively exercise caution seeking to absolve them of responsibility for past work. Some documentation exists concerning new constructions, mainly the Babylon Conference Center buildings, but as the presidential department, Saddam Hussein's diwan, was dissolved in 2003 these were transferred to the Ministry of Housing.[68]

67 The documents, not the footage, were copied and given to WMF for preparation of the BSMP in June 2009.

68 Requests for documentation from the Ministry of Housing representatives were denied.

Examples of Notable Archives

Aside from archaeological material discussed earlier in this section—notably the glazed brick portion of the Ishtar Gate housed at Vorderasiatisches Museum—outstanding archives from Babylon include:[69]

The East India House inscription

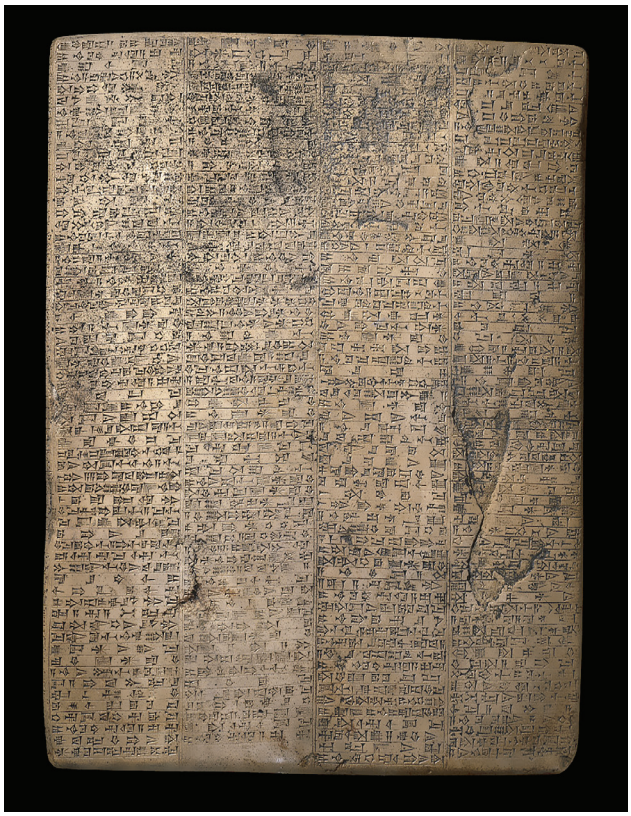
An early acquisition for the British Museum, this inscribed stone (56 x 50cm) is shaped like a cuneiform tablet. It records the building works of Nebuchadnezzar II at Babylon, using an archaizing script to evoke the city's past, specifically the era of Hammurabi.

The Cyrus Cylinder

This document records Cyrus' conquest of Babylon in 539 B.C., reflecting the Persian king's wish to present himself as a good and legitimate ruler of Babylon. The foundation cylinder, a Babylonian form, refers to Marduk, the patron deity of Babylon, rather than expressing Cyrus' own (unknown) religious beliefs. On the cylinder, Cyrus stresses that he will allow captive peoples to return to their cities and restore their shrines. The text does not mention Jerusalem, but is understood to reflect the end of the Captivity and the return of the Judeans to Jerusalem as per the Old Testament. The Cylinder is housed at the British Museum.

Babylonian Chronicles

Babylonian official chronicles record royal accomplishments and significant events. Among many notable episodes are chronicles recording Nebuchadnezzar's first attack on Jerusalem and the deportation of its royal family to Babylon, as well as the death of Alexander in the city in 323 B.C., both now in the British Museum.





The East India Inscription (above), British Museum, BM 129397; the Cyrus Cylinder found by H. Rassem in 1879, ME 09020.

Cylinders of Babylonian Kings

The Iraq National Museum contains a collection of foundation cylinders connected to the Neo-Babylonian period excavated from locations such as Nabu-sha-Hare and Ishtar temples that provide valuable information on the city's administration and historic appearance.

Babylonian Astronomical texts

The Vorderasiatisches Museum also contains important archives of texts from Babylon including significant material for the history of mathematics and astronomy.

69 Often described as the world's oldest code of law, the code of Hammurabi now in the Louvre Museum, Paris is possibly not the same stone that stood at Babylon so was not included in this list. More likely it is a copy of the law, and stood in the temple of the sun god Shamash in Sippar before it was taken as booty of war to Susa by the Elamites.



Rembrandt's *Belshazzar's Feast*, oil on canvas, c.1636–8.

Myth, Legend, and Reception

Babylon, specifically Esagila, was the cultural and scholarly center of the Mesopotamian world and the Babylonian Epic of Creation, which was written there, is one of the great works of ancient Mesopotamian literature. The Epic of Gilgamesh, which Babylon scholars surely helped shape, is the most famous work of Babylonian literature, and since its recovery in the nineteenth century has enjoyed a worldwide readership.

A wealth of myths and legends surrounding Babylon derived from religious scripture and classical literature continue to inspire thinkers and artists. Several legendary narratives associated with Babylon's built environment include:

The Hanging Gardens of Babylon

Classical texts attribute two of the Seven Wonders of the World to Babylon, the city walls and the Hanging Gardens.[70] While traces of the walls remain, the location of the Hanging Gardens has yet to be determined. Several possible locations include an area on the Shatt al-Hillah's banks beside the Northern Palace and an area between the river and the Southern Palace identified as the Western Outwork by Koldewey and a part of the Southern Palace known as the Vaulted Building (Koldewey's favoured location).[71] It has also been suggested that the gardens did not exist or that the classical descriptions refer to gardens at Nineveh.[72]

70 R. J. Van der Spek, "Berossus as Babylonian Chronicler and Greek Historian," R. J. Van der Spek, ed., *Studies in Ancient Near Eastern World View and Society Presented to Marten Stol* (Bethesda: CDL Press, 2008), 277.

71 J. E. Reade, "Alexander the Great and the Hanging Gardens of Babylon," *Iraq* 62 (2000), 195-218 and Koldewey, *The Excavations at Babylon* (1914), 91-100.

72 Budge, By Nile and Tigris: A narrative of Journeys in Egypt and Mesopotamia (London: John Murray, 1920), 297-8 and S. M. Dalley, "Nineveh, Babylon and the Hanging Gardens: Cuneiform and Classical Sources Reconciled," *Iraq* 56 (1994), 45-58.

Fiery Furnace

The biblical Book of Daniel tells the story of Shadrach, Meschach and Abednego, who Nebuchadnezzar threw into a fire but survived unscathed thanks to divine protection.[73] Several locations are associated with the story, including the Kasr (former mound of the Southern Palace) at Babylon, the mound of Ibrahim Khalil beside Birs Nimrud (Borsippa) and a place near the Tomb of Ezekiel in al-Kifel.[74]

Belshazzar's Feast

Judeo-Christian tradition associates Babylon's destruction with the Apocalypse. The story has its historical roots in the Persian conquest of 539 B.C.. In the Book of Daniel, Belshazzar (Bel-sharra-usur), King of Babylon, is said to have held a lavish feast before seeing his doom predicted in ghostly writing on the wall. Historically, Belshazzar was the crown prince, not king, and the throne room and central courtyard of Nebuchadnezzar's Southern Palace (also used by his successors) have been associated with the events. The sumptuous royal feasts on which the story in Daniel is based were surely held here.[75]

Nebuchadnezzar II

Nebuchadnezzar II is one of the most famous personages associated with Babylon. Descriptions of Nebuchadnezzar's character and career in European and Arabic sources derive mainly from the Book of Daniel. Some have interpreted the story of Nebuchadnezzar II acknowledging the power of Daniel's god as signifying his conversion to Judaism. This interpretation is congenial to some Iraqis who would otherwise be uncomfortable with the site's pagan associations.[76] There is no historical proof that such a conversion occurred, and although there seem to have been experiments with monotheistic ideas during the Neo-Babylonian period its kings adhered firmly to polytheism.[77]

The Angels Harut and Marut

The Qur'an's second surah tells how Allah sent Harut and Marut to test the Babylonians by performing acts of sorcery and commanding the people not to imitate them. The souls of those who ignored the warning were damned. Some interpretations of this verse hold that Harut and Marut themselves succumbed to human weakness and were duly punished. According to an old tradition the fallen angels were hung upside down in the well of Ninmah Temple to remain until the Day of Resurrection, a story that attracts visitors to the site.[78]

Kasr Tree

Throughout the nineteenth century European travelers reported the presence of a solitary, ancient tree on the Kasr mound that also figures in local stories[79] According to one story, it was the last vestige of the fabled Hanging Gardens; another legend says that god placed the tree and/

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73 New International Version of Bible (Daniel 3).

74 Reade, "Disappearance and Rediscovery" (2008c), 23.

75 New International Version of Bible (Daniel 5).

76 Michael Seymour interview with Ismael Jassim 'Ali al-Dulayly, 2011. Mr. al-Dulayly explained that many people in al-Hillah avoid the site because of its pagan associations. He did not subscribe to this view on the grounds of Nebuchadnezzar's alleged conversion.

77 I. L. Finkel, "Uncovering Life at Babylon," eds. I. L. Finkel and M. J. Seymour, *Babylon: Myth and Reality* (London: British Museum Press, 2008), 92-93.

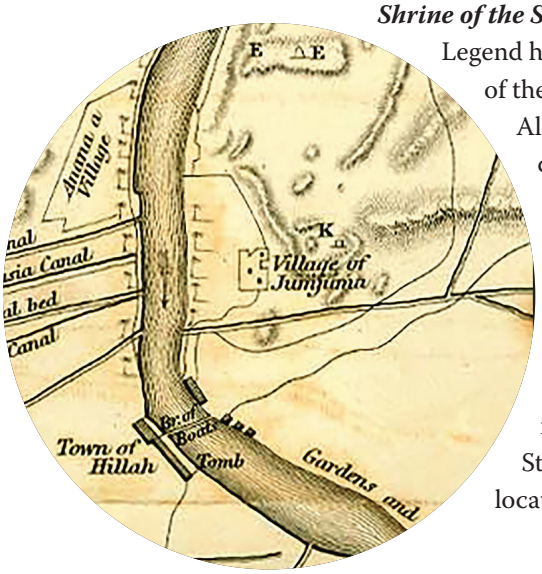
78 Sura al-Baqqara, 102. Scholarly interpretations of the Harut and Marut verse can be found at A. al-'Adl, Can Angels Disobey? – The case of Harut and Marut,n.d.,http://www.islamawareness.net/Angels/disobey.html (accessed June 15, 2014).

79 Reade, "Alexander the Great and the Hanging Gardens of Babylon," *Iraq* 62 (2000), 196.

or sustained it so that '[Imam] Ali might tether his horse there.'[80] Other versions of the story say that the tree grew from Ali's staff or tent peg.[81] [82] Carsten Niebuhr, who visited in 1765, saw more than one tree at the site, while noting that the species was unusual.[83] The tree, thought to be a tamarisk, appears in illustrations by George Keppell and Jules Oppert.[84] Philip Myers, visiting in 1872, found the tree had died.[85]

Although unconfirmed, it seems possible that the solitary tree stump standing in the place illustrated by Oppert is the one described by nineteenth-century visitors. It was intentionally preserved during the site's excavation and subsequent redevelopment in the 1980s. The area around the stump was excavated to a greater depth and the resulting change in elevation was walled with brick.

Shrine of the Skull



Legend has it that the village of al-Jimjmah was named after the Shrine of the Skull (*jumjumah*" is Arabic for 'skull') the place where Imam Ali stumbled upon a skull, endowed it with a voice and asked for directions and an explanation as to how its owner had perished. The skull replied that it had belonged to an Israelite King, and after recounting his tale, Iman Ali miraculously restored the king's lost body. The exact location of the shrine remains unknown, but Pietro della Valle visited it in 1616, calling it the "mosque" of the skull. It was in ruins by the time Captain Robert Mignan completed his Babylon map and description in 1829.[86] [87] Similar versions of this legend involve Jesus or St. Gregory with the talking skull incident occurring at other locations in the Levant.

Detail of Captain Robert Mignan's 1829 map with a ruined shrine labeled 'K' near al-Jimjmah village.

80 Rich, *Narrative of a Journey to the Site of Babylon* (1839), 66-7.

81 J. Oppert, *Expédition scientifique en Mesopotamie executée par ordre du gouvernement de 1851 à 1854, par MM. Fulgence Fresnel, Félix Thomas, Jules Oppert*, 2 vols. (Paris: Imprimerie Impériale, 1863), 147.

82 Koldewey, *The Excavations at Babylon* (1914), 168.

83 C. Niebuhr, *Reisebeschreibung nach Arabien und andern umliegenden Ländern*, 2 vols. (Copenhagen: Nicholas Möller, 1774-1778), 289.

84 Image of Kasr Tree appears in G. Keppel, *Personal Narrative of a Journey from India to England*, 2 vols. (London: Henry Colburn, 1827). J. Oppert, *Expédition scientifique en Mesopotamie executée par ordre du gouvernement de 1851 à 1854, par MM. Fulgence Fresnel, Félix Thomas, Jules Oppert*, 2 vols. (Paris: Imprimerie Impériale, 1863). Reproduced in Finkel and Seymour, Babylon, figure 7.

85 P. V. N. Myers, *Remains of Lost Empires* (New York: Harper and Brothers, 1874), 212.

86 Fabrizio A. Pennacchietti, "S. Gregorio l'Illuminatore e il re Ğumğum," *Studi sull'Oriente Cristiano 4-2* (Rome: Accademia Angelica-Costantiniana di Lettere Arti e Scienze, 2000), 119-138. Pietro della Valle, *Viaggio per l'Oriente, Le mummie, Babilonia, Persepoli*, ed. Antonio Invernizzi, (Alessandria: Edizioni dell'Orso, 2001), 141, 146.

87 Robert Mignan, *Travels in Chaldaea Including a Journey from Bussorah to Bagdad, Hillah, and Babylon, performed on foot. With Observations on the Sites and Remains of Babel, Seleucia and Ctesiphon* (London: Henry Colburn and Richard Bentley, 1829), 201.

Land Ownership and Use

(See *BM02, 'Existing: Property Ownership and Plots'* map)

Babylon's function as an archaeological site is relatively recent, and arguably began with Robert Koldewey's excavations, which set tracts of the site aside for study and prevented bricks from being removed and recycled for local construction. The area around Babylon and parts within it had previously supported farming communities for many centuries.

Deed and Title History

Throughout the period of Ottoman rule (1534-1920) virtually all land in Iraq was owned and operated under a feudal and tribal management system. Peasants leased tribal land with permission to farm; military officers collected a land tax. By the 1800s the majority of military officers were replaced by government officials. The lands under their supervision became known as *malikane,* and their sons inherited their life-long positions.[88] While never questioning the state's rightful ownership, these officials gradually retained a larger percentage of the taxes, and as powerful local authority figures, eventually refused the state its portion.



SBAH archaeologist reviewing a farmer's Ottoman property deed.

The Ottoman Land Code of 1858 introduced a modified classification system to better collect taxes and diminish the land barons' power. Most land was *raqaba* or absolute government ownership.[89] A category of *raqaba* was called *miri* land, state-owned land where the right to cultivate (*tasarruf)* was granted to an individual. The holder of *tasarruf* was essentially a tenant, but *miri* lands were usually inheritable and the compulsory registration of ownership gave them *tabu,* a kind of title. [90]

The 1858 Code provided for issuance of deeds or written contracts, formalizing individuals' rights to occupy/farm a land parcel for the first time. The Code also made formerly unoccupied lands available for sale (although *raqaba* still held). These two innovations resulted in more land being farmed and more taxes collected. To build cooperation with tribal sheikhs, Ottoman governors permitted them to register tribal lands as their personal property (while still recognizing *raqaba*). The undesired result was a new class of enriched rent-seeking landlords who leased *raqaba* land to peasants to cultivate.

Under the British, the *Lazmah* Law of 1931 (Law 51) was introduced. *Lazmah* was the customary tenure by which tribes collectively owned their land. This law provided the state some say in property transfer in order to keep most *raqaba* land in tribal hands. Individuals who possessed the *tasarruf* for a property for more than fifteen years had to register for a *lazmah* title. The difference between this and a *tabu* title was that a *lazmah* title required approval by the government registry.

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88 "Land Code of 1858," *Gale Encyclopaedia of the Mideast and North Africa*, http://www.answers.com/topic/land-code-of-1858.

89 United States Agency for International Development, Iraq Economic Governance II Program, *Diagnostic Report-Real Property Law and Registration* (Baghdad, Bering Point, Inc. 2004), 8-11.

90 "Land Code of 1858," *Gale Encyclopaedia of the Mideast and North Africa.*

When Iraq's first independent government took charge, the large estates created by the reforms of 1858 were subdivided under the Agrarian Reform Law of 1958, and the Agricultural Land Consolidation Law of 1976 (Law 53).[91] This affected most of the land at the south end of Babylon where a large parcel was divided into dozens of smaller plots and redistributed.

Today most of the more than 500 privately owned plots within Babylon's boundaries remain under the *miri* property system, but since Law 53 came into effect concepts of *tabu* and *lazmah* changed.[92] [93] Law 53 divided plots under these two categories into percentages of government and private ownership. The *tasarruf* no longer meant an individual only had rights to cultivate; now the owner could freely mortgage and dispose of land as desired provided the government got its cut. The *tasarruf*, however, retained traditional grazing, irrigation and other rules.

Sales of *miri* land require that a percentage of the price be paid to the Ministry of Finance, who is a partial owner. *Miri* lands at Babylon generally fall under three categories:[94]

1. *Miri serf* (*al-Arady al Amireya al-Serfa*), land completely owned by the Iraqi Government and all rights reserved for the state. This land can be used directly or indirectly at the state's discretion.

2. *Miri mumnuha bil-tabu* (*al-Arady al Amyreya al-mofawada b' el-tabu*), Iraqi Government land with private citizen co-owner rights to manage for agricultural purposes. Historically, rules of usage stated the land reverted to complete state control if not used for at least three years.[95] In the event of a sale:
   - If the total area is less than 5 donums, 66 percent goes to the private citizen and 33 percent to the Iraqi Government.[96]
   - If the total area is more than 5 donums, 50 percent goes to the private citizen and 50 percent to the Iraqi Government.

3. *Miri mumnuha bil-lazma*, land with *lazmah* titles, collectively owned by tribes, for agricultural purposes. The definition is common with bil-tabu, but in this case tradition gave the state the right to veto the transfer of bil-lazma titles if this tended to disturb the peace. Today in the event of a sale, 25 percent goes to the private citizen and 75 percent to the Iraqi Government. In the event of inheritance a tax is required, but to avoid it most heirs fail to register their properties leaving deed and title records inaccurate/outdated.

Other types of land ownership complicate tenure at Babylon: two types of Waqf-related land donations known as *al-Ard al-Mukufa*:

4. *True Waqf* (*al-Ard al-Mukufa Waqfan Sahihan*), a charitable land donation to the Waqf administration designating the state agency as manager of this land allowing for the benefit of religious institutions through commercial and non-commercial uses if they provide advantages to the poor.[97]

5. *Untrue Waqf* (*al-Ard al-Mukufa Waqfan Ghair Sahihan*), a property donation by a person or entity who inhabits, but does not truly own, the land. Waqf manages this land and allows

91 Ibid., 11.
92 Joseph Sassoon, *Economic Policy in Iraq, 1932-1950* (London: Frank Cass & Co. Ltd.) 1987, 156.
93 United States Agency for International Development, Iraq Economic Governance II Program, 17.
94 Ibid., 9; WMF interviews with Fatten Hjwel, 2010.
95 Sassoon, 156. This right was rarely activated.
96 *Donum*, an Ottoman era land measure, equivalent to 1000m^2.
97 WMF interview with Salah Mahde, 2012 and Sassoon, 156.

religious institutions to benefit through commercial and non-commercial uses if they provide advantages to the poor. The donation is considered 'false' as the donor does not possess legal rights over the property.

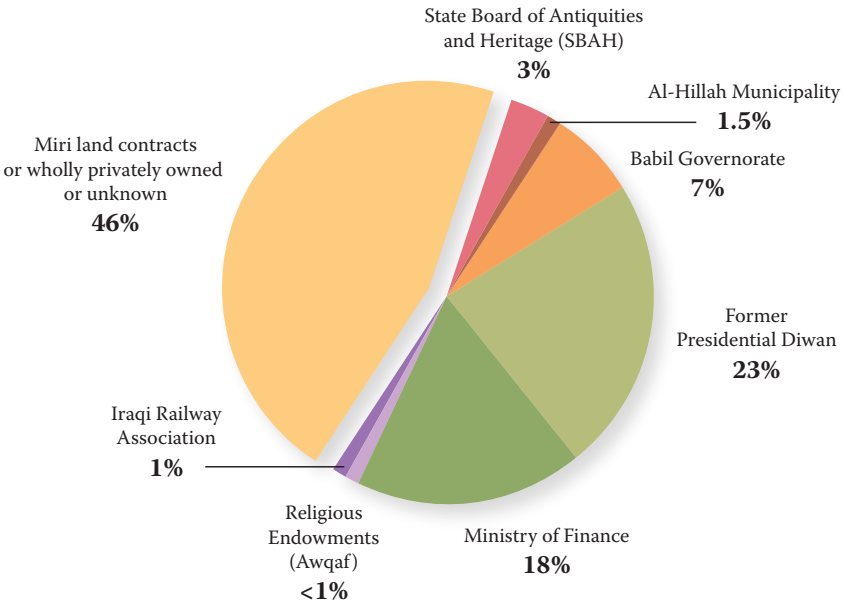
Other types of land found at Babylon:

1. *Hak Tasarruf,* land wholly owned by the Iraqi Government and all rights reserved for the state, but with private citizen rights to manage it for public benefit.

2. *Al-Arady Matruka,* Iraqi Government land reserved by law for public benefit tied to a specific community or tribal affiliation.

3. *Mulk (Al-Ard al-Mamluka),* the simplest ownership and increasingly more common is full private ownership with no government investment.

Complications arise when the SBAH or another government agency wishes to acquire properties. In order to buy back privately owned land within the site boundaries the SBAH must acquire funding that typically moves from the Ministry of Finance to the Governorates who then execute purchases based on the SBAH's recommendations. Rates of payment are set by a five-member board of compensation including representatives from the Tabu (title) office, the court system, Ministry of Finance, Ministry of Agriculture and the SBAH Babil inspector. Together they make offers to land owners, who usually find them insufficient.



Percentages of property ownership types within Babylon's boundaries.

In the case of *miri* landowners, the Ministry of Finance, the *raqaba* holder, is both part owner of *miri* land and purchaser of all land in Iraq and must pay itself for land acquisition unless it purchases private property. The Ministry of Justice has ruled this unacceptable, and until the issue is clarified these parcels cannot change hands. This situation further supports the recommendation that *mulk* properties take priority in SBAH acquisitions.[98] Consequently, the SBAH cannot acquire some important portions of the archaeological site, for instance the privately owned land partially surrounding Etemenanki ziggurat.

Incomplete property ownership records are another obstacle to land acquisition. The most recent deed and title documentation dates to a 1949–1951 survey by the Ministry of Irrigation and Land Settlement Committee. The majority of Iraqi land was then 62 percent *miri serf* with only 0.3 percent in private ownership (*mulk*).[99] Property records since have fallen out of date partly because titles are typically registered in the case of an outright sale, but names on inherited plots are rarely transferred, also private lands have become more a part of the tenure landscape.

98 WMF interview with Salah Mahde, 2012.

99 Sassoon, 157.



Typical residential construction found within and around Babylon's boundaries.



As part of the Babylon Site Management Plan, the SBAH conducted a survey of property ownership. Due to the lack of accurate property records it was only partially updated, the results can be seen on BM02, 'Existing: Property Ownership and Plots.' Initial data suggests nearly half of all land inside the boundaries remains under *miri* land contracts or increasingly *mulk* titles. The rest under a collection of absolute government ownership types, foremost being the former presidential diwan of Saddam Hussein expanded during the late 1980s to include all of Old Kweiresh.

With al-Hillah's growth as a provincial economic hub (1970s–1990s) agricultural land around Babylon has come under increased pressure. Improved roads encouraged commercial developments and the villages evolved into commuting suburbs. Illegal residential and commercial expansions continued as Saddam Hussein's regime declined, and hyper-accelerated with the collapse of the rule of law in 2003. *Tasarruf* land intended only for farming was transformed to serve residential and commercial needs, a trend that continues today with detrimental effects for Babylon and its surrounding landscape.

The old laws, restricting a tenant's land use and allowing only farming, are no longer realistic, as families grow and farming income is insufficient, nor are they enforced. New building regulations are needed but only recently has the extent of unlicensed development and its threat to Babylon been recognized and discussed with various stakeholders, as part of the process of compiling the BSMP.

Agriculture

(See *BM06, 'Existing: Natural Resources'* map)

Farming activity at Babylon has historically ebbed and flowed depending on the availability of water. Unfertile land (*mawat)* was left fallow, including Babylon's archaeological tells. By the nineteenth century, the Shatt al-Hillah had silted up and large areas of the site were left to desertification.[100] Koldewey captured a sense of the landscape at the time of his excavations:

> The heights of Babil afford a fine view over the entire city, especially towards evening when the long purple shadows cast on the plain throw up the golden yellow outlines of the ruins in high relief. No human habitation is in sight. The villages on the left bank of the Euphrates—Kweiresh where our house is, and Djumdjumma farther south—are so buried among the green date palms that one can scarcely catch a glimpse of even a wall. On the other bank are Sindjar and Ananeh also concealed in the same way, although the latter village with the farm of Karabet stands forward somewhat more clearly. The Euphrates is fringed with palms, which cluster more thickly near

100 Robert I. Money, "The Hindiya Barrage, Mesopotamia," *Geographic Journal* 50:3 (1917), 217-222, http://www.jstor.org/.

> the water. To the south above their ornamental crowns the minaret of Hilleh gleams, and in the distance can be seen a somewhat pointed hill surmounted by a jagged wall, the ruin of E-ur-imin-an-ki, the tower of Borsippa. Due east is the mound of Oheimir, where are the ruins of the ancient Babylonian Kish, towards the north the palms of Khan Mhauil are to be seen, and, when the weather is favourable, Tell Ibrahim, the ancient Kutha. With these exceptions all that is visible is the sombre, dun-coloured desert. The cultivated stretches are diminishing in extent and are only noticeable for those few weeks in the year when they are clothed with green.[101]

Irrigation improvements and a series of agrarian reform laws changed Babylon's landscape. Construction of the Hindiya Barrage upriver (1911–1913), at Saddat al-Hindiya, where the Euphrates' two branches diverge, and dredging and improved levees replenished the Shatt al-Hillah, affording farmers a steadier water supply.[102] The area was subsequently repopulated and cultivated. Photographs from the mid-twentieth century show Babylon surrounded by a lush landscape, a far different view than Koldewey's a half-century earlier. Large sections of the site along the Babil River's east bank were sown with crops, and date palm groves expanded further inland from the Shatt al-Hillah. On the river's west bank around the villages of Sinjar and Annanah, a dense curtain of date groves formed a natural barrier to development and an aesthetic backdrop to the archaeological core, where palms surrounded al-Jimjmah and Old Kweiresh as noted by Koldewey. Of note are the less formalized palm groves that grew where excavation workers deposited date stones while eating their lunches.[103]

Upriver barrages fostered date palm growth in previously barren areas within and around Babylon (below). Koldewey expedition photograph, early 1900s.





101 Koldewey, "The Excavations at Babylon," 1914, 13-14.

102 WMF interview with Zaki Abbas, 21 May, 2011. Mr. Abbas is a retired engineer with the Ministry of Irrigation who worked on the Hindiya Barrage and Dora Regulator, the dam south of al-Hillah.
Money, "The Hindiya Barrage, Mesopotamia," 217-222.

103 Damerji, *Babylon*, 2010, 17.

Assyrian and Babylonian scribes revered the date palm as the 'god-king', the 'tree of abundance', and the 'tree of riches' and the trees were perfectly suited to Babylon's arid environment and intensive sunlight.[104] Another Assyrian text refers to the goddess Ishtar of Babylon as 'the beautiful one, the queen of the Babylonians…a palm of carnelian.'[105]

These references support the notion that the presence of date palms at Babylon had a significant impact on ancient landscapes and livelihoods. The use of date palms to create a shaded microclimate supporting fruits, vegetable and other fodder was critical to diverse cultivation in harsh climates. This practice of storied cultivation continues in and around the site today.

Ancient Mesopotamian laws regarding the management of date palms reflect their significance. Hammurabi's laws frequently refer to penalties and regulatory measures associated with date palm farming.[106] The importance of the date palm extended beyond that of fruit and shade. Cuneiform texts from Mesopotamia refer to a variety of uses: wood was used for boat building, fronds were used for matting and medicine, and stalks were used for rope making and fuel. During the annual wedding festival of the goddess Bau, date palm hearts were considered 'wedding gifts' or offerings of food.

The date palm and its managed cultivation is an inextricable element of the Babylon cultural landscape and will be considered as a component of the overall management strategy for the site (*see* Action Plan).

Although agriculture is no longer the economic backbone of Babylon communities, it remains a visible presence, as in antiquity when most of the areas around the city were intensely cultivated. Aside from date and fig harvesting, families often plant fodder for livestock and limited cash crops to furnish some household needs, but income from the land can no longer solely support a family.

For over twenty years, the SBAH has imposed limits on irrigation water use and well size (maximum width 5cm and depth 5m) at Babylon despite the absence of official laws restricting



Date palms remain a valued source of income for local families.



104 Daniel Potts, *A Feast of Dates* (Abu Dhabi: Trident Press, 2002), 9. *The Debate Between The Tamarisk and The Date Palm* was a staple of Mesopotamian literature.

105 Potts, 18.

106 Ibid., 19.

these practices within archaeological sites.[107] They also forbid the planting of new date palms and the replacement of dead palms with seedlings. Salinization has created a salty soil crust (no longer washed away by regular irrigation or flooding) and diminished the land's productivity. When water's salt content is high, the normally sturdy trunks of palms grow hollow and either whither or are snapped off by strong winds.[108] Large historic groves in southeast Babylon have been decimated due to soil conditions, and other groves deliberately destroyed to make way for new housing.



Palm trunk destroyed by soil salinization.

High salinity has obliged some farmers to switch to more resilient crops such as okra and string beans. Many continue to disregard SBAH regulations and irrigate lands at will with water pumped from the Babil River. With permission of the SBAH, farmers re-dredge existing ditches and some are now deeper than any trenches cut for Camp Alpha.

Surrounding Communities

(See *BM05, 'BM05 Existing Communities Assessment'* map)

Aside from al-Hillah, the origins of the communities within and surrounding Babylon are difficult to ascertain. Local residents often maintain that their villages date to the Ottoman period, due to the fact that *miri* land deeds date to this period. Muayad Said Damerji, former director of the Revival of Babylon Project, suggests that some villages were settled in antiquity: Bernoun or *Thul-Noon*, Kweiresh or *Koresh* (Cyrus), and Annanah or *Inana*.[109] Many villagers claim that their community is 'original' to the area.[110]



The site management process involved in-depth interviews with one hundred residents.

All of the communities in and around Babylon are rapidly developing from compact dense settlements to sprawling suburbia. Despite laws restricting construction inside Babylon, new housing threatens the archaeological remains and interferes with their presentation as well as general site vistas. Current 'double volume' building designs reflect a trend imported from Baghdad, initiated by the Iraqi architect Khusra al-Jaf in the 1990s.[111] The style ironically mirrors the grandiosity of the former presidential palaces (in accordance with the builders' budget); two-story 'mini-palaces' with pillared porticos and facades in bright-colored stucco, ceramic tiles or marble cladding have recently multiplied. In the absence of detailed building codes enforced within the site and its buffer zones, larger, more imposing houses will continue to diminish Babylon's aesthetic and worse, destroy archaeological remains.

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107 WMF interview with Sahar Mohamed Farhood, held at his farm in Babylon, 10 May, 2011. Mr. Farhood owns six donums inside the archaeological site boundary near Marduk Gate.

108 WMF interview with Ali Jabur, at his farm in Babylon, 4 May 2011. Mr. Jabur owns 48 donums of land inside the archaeological site boundary between the inner and outer walls.

109 Damerji, *Babylon*, 2010, 16-17.

110 WMF interviews with community members, 2012.

111 WMF interviews with Faeza Hussein, 2011-12; interviews with Maha Sayed, 2012.



One of several buildings in old al-Hillah constructed with Babylon bricks.

Al-Hillah

Population: 500,000

Babylon lies within the municipal boundaries of al-Hillah, the capital of Babil Province and the major city in the area. Situated along the Shatt al-Hillah to Babylon's south, Koldewey suspected that when al-Hillah was founded in the eleventh century the last inhabitants of Babylon moved there.[112] Other references suggest the settlement began far earlier when Abbasid-era tribes from the north first moved to the nearby village of Nil and later members of its clan to the area "between the two mountains" (the archaeological mounds of Babylon and Borsippa).[113] The origins of the city lie in reuse of Babylonian building material, mainly the abundance of fired brick found on site. Several buildings in al-Hillah are reportedly made from them. In the past al-Hillah was an important port on the Euphrates river network and the traditional pilgrimage and trade route between Baghdad and Najaf and Kufa. Its reputation as a cultural and scholarly center of the country derives from its place in early Shi'a history.

Today agriculture is the most important economic sector accounting for 44% of the employment in Babil Province, al-Hillah being the commercial center for this activity. The main crops are grains supported by irrigation from the Euphrates. The provincial government is keen to expand the local economy and tourism is seen as a potential resource for jobs.[114] Al-Hillah features not only its proximity to Babylon and other provincial archaeological and heritage sites, but access to its own collection of Islamic medieval sites.

Kweiresh

Population: approximately 2,000

Old Kweiresh was a densely-built village of about 200 households wedged between the Shatt al-Hillah and Babylon's northern and southern palaces. It replaced a settlement several hundred meters north on the Shatt al-Hillah that was abandoned for unknown reasons.[115] Although already well established, the village grew in response to the need for workers on the 1899-1917 Deutsche Orient-Gesellschaft excavations and continued to supply labor for exca-



Payday at Old Kweiresh during the Deutsche Orient-Gesellschaft excavations, early 1900s.

112 Koldewey, *The Excavations at Babylon* (1914), 212.

113 Sheikh Yusuf Karkosh, *The Hillah History* 2 Vols. (Najaf: Al-Haidariya Press, 1965).

114 UN Inter-Agency Information and Analysis Unit, 'Babil Governorate Profile,' research dated February 2011, http://www.iauiraq.org/search.asp?search=Hillah. For further information on al-Hillah and Babil Province's potential for tourism development see *Welcome to Babil Province, Tourist Guide* (Al-Hillah: Provincial Reconstruction Development Committee, 2010) and ProCare Services de Consultations, *Babel Tourism Development Plan,* part 3 of 4 Final Report, (Amman: UNESCO, 2013).

115 R. Mignan, *Travels in Chaldaea Including a Journey from Bussorah to Bagdad, Hillah, and Babylon, performed on foot. With Observations on the Sites and Remains of Babel, Seleucia and Ctesiphon*, 1829, 168-169. Mignan, quoting a German traveler named Rauwolff, identifies the ruins as those of Elugo which he ascertains incorrectly to be the village of Nil located some 10 kilometers further east. No sign of the village ruins remain, however, the property and plot boundaries still carry its footprint.

vations at Babylon. The German mission was based here and Walter Andrae's watercolors and anecdotes regarding life at Babylon are mostly drawn from Kweiresh.

The village was destroyed in the late 1980s as work began on the Revival of Babylon Project. The area where the village once stood lies beneath the mound built to host Saddam Hussein's former palace; only a crumbled brick kiln and date palms remain. Residents, mainly of the Dulaim (Sheikh Sadek Mehdi Abbas) and Mamur tribes, were compensated through relocation to several nearby communities. Families were usually given a cash settlement plus 200 square meters of land.[116] Many moved nearby to an area beside another brick kiln on the new Baghdad-al-Basra highway. 'New Kweiresh' consists of approximately 120 houses. It has no school, poor infrastructure, and little access to public transportation.[117] The brick kiln with its tall smokestack built in the 1960s is the village's prominent feature. The kiln operation was shut down in 2012 because of back taxes and will soon be demolished.

Al-Jimjmah

Population: 2,500 in the north and 2,800 in the south section

Composed of about 500 houses, mostly families belonging to the Rubaeah (Sheikh Saadun Ali Abbas), Khafaja (Sheikh Ryad Khalil Ismail), al-Salaami (Sheikh Murad Abbas), and Bowei (Sheikh Kadum) tribes, al-Jimjmah is located southwest of Babylon's core with its main street running parallel to the ancient inner city walls. The village lies along the access road to the Shrine of Amran ibn-Ali, several hundred meters north, a road that until the nineteenth century was the main passage between al-Hillah and Baghdad.[118]



Al-Jimjmah main street running parallel to and probably over portions of Babylon's city walls.

Reportedly named after the Shrine of the Skull (*jumjumah*" is Arabic for 'skull'), al-Jimjmah residents supplied labour for Hormuzd Rassam's late nineteenth century excavations. Some inhabitants trafficked in antiquities, furnishing Baghdad antiquities dealers with cuneiform tablets and cylinders for the European market.[119]

Like all local communities, al-Jimjmah had an agrarian economy, but in recent decades it grew dependent on al-Hillah and its government employment opportunities. Several residents own plots inside the core of Babylon where farming is forbidden, and still graze livestock on these properties. Garbage is often dumped on the south side of Amran Hill and others have illegally co-opted property inside the site boundaries to build houses and shops. Commercial activity consists of services for the community and workshops, including carpentry. Many residents own cars, and an efficient microbus service connects to al-Hillah from a village terminus.

116 WMF interview with Meky Farhood, 2011.

117 New Kweiresh inhabitants rely on microbuses going to and from Bernoun.

118 WMF interview with Ahmed Kamel, 2013.

119 Reade, "Disappearance and Rediscovery," 2008 and Rassam's Babylonian collection: the excavations and the archives.



Unique among Babylon's communities, Sinjar hosts both Shia' (above) and Sunni mosques.

Sinjar and Zwair

Population: 5,300

Located within the site boundaries west of the Shatt al-Hillah, Sinjar's residents comprise both Shi'a and Sunni Muslims with mosques for both, the latter a small minority in Babil Province. Despite recent sectarian violence, Sinjar remained relatively peaceful and neighbours continue to live and practice their beliefs side by side.[120]

Sinjar and the smaller Zwair to its south are better off economically than the other villages around Babylon. Employment is primarily daily wage earning and government jobs in al-Hillah, easily reached via the busy al-Hillah-Karbala Road. Some residents tend date palm groves, but few are occupied with farming. Sinjar and Zwair developed rapidly in the past decade. New suburbanized housing is spreading from the dense village cores mainly westward, and north along the canal road that follows Babylon's western walls.

Unlicensed housing now intersperses the date palm groves between Sinjar and the Shatt al-Hillah, and in the 1990s and 2000s obliterated the last visible vestiges of Babylon's outer city walls. At Zwair houses are under construction on the riverbank facing the central archaeological area. Several large fishponds were also dug in the area but are now abandoned, a few inside the irrigation ministry's flood zone (demarcated by a parallel access road).

Nearby along the river, settlements of internally displaced people (who fled violence in other parts of the country) also a mix of Sunni and Shi'a, live in rustic housing lacking services and in some cases utilizing open pits for bathrooms. Despite the river easement forbidding development, one family has built livestock shelters on the riverbank opposite Saddam Hussein's former palace.

Annanah

Population: 8,000

Located on the west bank of the Shatt al-Hillah beyond the Neo-Babylonian walls, Annanah appears on the map of Claudius Rich (1811) as a rectangle with fortifications set back from the river amongst date palms.[121] Until the 1980s it was a rectangular settlement bisected by a dead end road densely lined with housing.



Refugees from violence elsewhere in Iraq now settled in Annanah.

Unlike the other villages, Annanah has two schools, testimony to its recent growth. Building extends up to the flood zone along Shatt al-Hillah but expansion is greatest on the opposite side of town along the village entrance road towards the Furat fish farm. Streets are laid over irrigation ditches and

120 Neighbouring groups consist mainly of the Dulaim (Sheikh Mohi Azziz), Ginabat Albu-Nesar (Sheikh Qaad Najim), Albu-Maith (Sheikh Khalil Ismail), Shamrah (Sheikh Sherif Hasoon Hamadi), Khafaja (Sheikh Kudher Jasim Ghazal), Alyasar (Sheikh Mizhar Khulkhar), and Almaamrah (Sheikh Duraid Mehdi Kadum) tribes.

121 Rich, *Memoir on the Ruins of Babylon*, 1815.

houses replace date palms. A canopy of date palms that conceals most of the development is disappearing as new housing spreads from the village core.

Like Sinjar, employment for most Annanah residents involves commuting to al-Hillah, but as a larger village it boasts several retail shops and a restaurant. Many new people have settled along the Shatt al-Hillah, and built livestock barns and pens on rented plots.[122] These new immigrants have restored a rural feel to suburban Annanah, but unregulated livestock grazing and solid waste disposal practices endanger the landscape.

Bernoun

Population: 8,000

To the north of Babylon, inland from the east bank of the Shatt al-Hillah, the fast-growing village of Bernoun lies at the end of a road some distance from the main Baghdad-al-Basra highway. The dead end road runs between the Summer Palace and the village center. Once lined with fields, the route has developed swiftly since 2003, and is now flanked by fenced villas, shops, commercial construction businesses and their suppliers.

Despite rumours of relocating the village during the Revival of Babylon project, Bernoun was left untouched and a moratorium placed on land sales to outsiders limited the village's growth. Bernoun's population nonetheless increased, owing mostly to migrants from other parts of Iraq with relatives in the main local tribes, primarily branches of the Dulaim tribe.[123]

In 2012 Babil Governorate officials changed district boundaries around the village moving it from Mahawil District to inside the Hillah municipality. Now all of the surrounding communities are inside the municipality except Annanah. Residents of Bernoun, disgruntled by the lack of public services under the old administrative boundaries, feel the move will only make things worse.

Internally displaced people, the Maydan, from the marshlands near al-Basra have resettled south of Bernoun on the Shatt al-Hillah where they tend hundreds of livestock, mainly water buffalo.[124] On the banks of the Shatt al-Hillah families have built traditional marshland houses, communal dwellings made of intricately woven reeds. These families are poor and their children have no easy access to education.



New housing on the road between the Summer Palace and Bernoun.



Maydan children play near traditional family dwellings with the Summer Palace in the distance

122 The following groups are found in this area: the Albu-Hassan (Sheikh Hmood Hamza Madhi), Muamra (Sheikh Rahman Hamid), Khafaja (Sheikh Ismail Edan Ismail), al-Saaidat (Sheikh Salah Hassan Elewi), al-Ajel (Sheikh Fadhil Alwan Abbas), al-Shwafia (Sheikh Qahtan Hassan Nimrud); and al-Kaabi (Sheikh Hussein Mehaws Lefta).

123 WMF interview with Sheikh Haider Jabbar Obeis, 2012. Branches of the Dulaim tribe are primarily found here: Albu-Berhi (Sheikh Jafar Sahib Hussein); Albu-Khalil (Sheikh Abid Zaid Habib); Albu-Salem (Sheikh Mohamed Jasim Mohamed); Albu-Dawood (Sheikh Haider Jabbar Obeis); Albu Huraifat (Sheikh Sattar Kadum Abid Abdalla), and Albu Muhamde (Sheikh Haider Mohsen Abood). Other Bernoun tribes are the Shamar (Sheikh Hassan Ali al-Jbbur); Ginabat (Sheikh Jabbar al-Firas); Muamra (Sheikh Hassan Mohamed Hassani); Rubaeah (Sheikh Musa Khudier Abbas); al-Tuwaleb (Sheikh Hassan Karim Hamza al-Haddat); and al-Kadas al-Zubaid (Sheikh Hamid Sadek Anbar).

124 In the early 1990s Saddam Hussein ordered the marshlands drained as punishment for a local rebellion, knowing the wetlands were a source of food and livelihood.

Building Inventory Database

(See *BM03, 'Existing: Building Inventory'* map)

At Babylon, ancient monuments that were completely reconstructed in the 1980s stand beside ruins exposed for more than a century and modern buildings in various stages of decay. The BSMP required a comprehensive survey of existing building stock, ancient and modern (early twentieth century to present), and an assessment of all recent alterations to the site including those associated with roads, infrastructure, and the Camp Alpha military occupation.

The building inventory is stored in a geographic information system (GIS) database using GIS software called *ArcView*, an internationally recognized geo-referencing tool that aids planning and formulating proposals. Data can be added as it is accumulated and it is hoped that the SBAH will continue to enhance and employ this valuable resource. For now, buildings in the core of the site have been surveyed and those outside the zone await processing.

In the GIS database, structures are identified by an alphanumeric coding system and surveyed for a pre-defined set of variables, including construction date, condition, original, and present use. A summary of the building inventory information stored in ArcView appears in map BM03, 'Existing: Building Inventory'. The inventory reference codes appearing after subheadings; the text in the following two sections corresponds with those used on the map. This map is referenced in subsequent chapters to define intervention strategies at monuments and guide the development of commercial real estate, zoning codes, and adaptive-reuse planning.



Aerial view of modern facilities and monumental reconstructions amid Babylon's ancient remains: 1) Babylon Conference Center 2) former palace of Saddam Hussein atop Mount Saddam 3) Southern Palace 4) Northern Palace 5) inner city walls 6) Ishtar Gate and 7) Processional Way.

Historic Structures

(See *BM03, 'Existing: Building Inventory'* map and *Appendix 2,* for condition assessment reports)

Brief descriptions of the monuments and excerpts from condition analyses appear below in the same order as in visitor routes defined in map BM13, 'Proposed: Visitor Facilities and Presentation Plan.' More detailed descriptions are provided in Appendix 2 (Mahmoud Bendakir's 2010–2011 condition assessment reports); the selected bibliography regarding Babylon's historic structures and archaeology provides further information.

Outer City Walls

Babylon's walls were renowned in antiquity for their monumental scale. The outer wall enclosed the city in its heyday, the Neo-Babylonian period (roughly extending five kilometers north—south and four kilometers east—west between known corners of the city wall, the actual perimeter length of the walls being far greater). Further defensive walls were built outside Babylon to protect the city from attacks originating in the north. The area enclosed by the outer city walls was vast doubling the size of the city. The only walled city that approached Babylon's size at the time would have been Nineveh before its sack in 612 B.C.. Aristotle, who knew Babylon from Greek descriptions (which consistently exaggerated its already impressive scale), wrote that it was less a city than an entire nation enclosed within a wall.[125]



Mounded remnants of Babylon's outer walls as yet undisturbed by modern encroachment.

The outer walls were breached in the 1920s when the north-south Baghdad Railway line was laid through Babylon.[126] The railway was later rerouted but gaps in the wall are still visible at the north and south ends of the archaeological site. As a result of the Baghdad-al-Basra highway's 1981 redevelopment, larger sections of the inner city wall parallel to the rail line were demolished, and the gaps where it penetrated the outer wall were widened. The road and railway were subsequently re-routed around Babylon but the damage remains.

Today the outer walls appear as a series of low mounds around the eastern and southern sides of the city. Koldewey's excavation trenches are still visible near the Summer Palace, though now filled with vegetation. During the past three decades vestiges of the walls on the river's west bank have completely disappeared. The last sections were leveled in 2005 for new construction, but portions probably remain beneath the present ground level.

No attempt was made to demarcate, conserve or rebuild the outer walls. This has encouraged encroachments by property owners seeking to circumvent archaeological site laws to develop their land. Logic infers that if there is no visible evidence of archaeology then there are no restrictions on land use.

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125 I. L. Finkel and M. J. Seymour, *Babylon* (Oxford: Oxford University Press, 2008), 115.

126 Jonathan S. McMurray, *Distant Ties: Germany, the Ottoman Empire, and the Construction of the Baghdad Railway* (London: Praeger, 2001), 2.



1927 aerial view of the Summer Palace showing historic and modern irrigation canals issuing from the Shatt al-Hillah in the background.

Summer Palace

Built during the Neo-Babylonian period and added to in the Achaemenid, Seleucid, and Islamic periods, the Summer Palace was known as such because it employed ventilation shafts.[127] The ruins of the palace are located north of the site's center, atop a mound known locally as Jebel Babil.

Since the mound was named for the ancient city, European travellers typically thought it was the ruins of the Tower of Babel. The ziggurat, located elsewhere on the site, has almost entirely disappeared but Tell Babil forms a prominent hill above the plain. It mainly contains remnants of ruined Neo-Babylonian architecture, and substantial deposits from later periods including the Neo-Babylonian bricks reused in later structures.

Austen Henry Layard made a preliminary exploration of the mound in 1850 but decided that excavating it would be too complex, costly, and time-consuming. The Deutsche Orient-Gesellschaftwas more successful, revealing the Summer Palace's foundations and substructure.

Although subject to centuries of exposure and erosion, brick removal and artefact looting, the ruined palace, at 18 meters above the surrounding terrain, is an affecting archaeological monument.[128] Robert Koldewey, who mapped the floor plan of the Summer Palace, and subsequent investigations by SOAH, opened areas and architectural details to weathering that still pose preservation problems. Animal burrows in the lower mound weaken the upper layers. View sheds of the palace are at risk, especially from the north and east where the Summer Palace is the first visible structure of Babylon seen from the Baghdad-al-Basra highway. There is no perimeter fence and the palace is unsecured.

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127 "First International Scientific Conference on Babylon, Assur and Himreen," *Sumer* 35, (1979), 148-149.

128 Elevation based on the 1:2000 scale topographic map series by the General Establishment for Survey, Baghdad, 1982, map 3602-446.

***Northeast Inner City Walls* (NH01)**

Rebuilt on the rubble and foundations of the original wall trace, this partially reconstructed wall, 60 meters long and seven meters wide, uses unbaked materials while the upper layers at the north and south are of modern, fired and half-fired brick resting on a layer of vegetable matting. Only the inside portion was rebuilt, the outside left as a rubble mound against it. In a modern restoration attempt dating to the Revival of Babylon project, the top joints were filled with cement to reduce water penetration.[129]



Reconstructed wall in a state of collapse.

The wall's original form was never fully realized in reconstruction. Eastern or outside portions have differing elevations creating spaces for water to collect and vegetation to grow. The rigidity of the top modern baked brick and cement layer is incompatible with the more flexible masonry below. Consequently the structure settled unevenly, creating cracks in the capping that offer channels for water penetration deep into the masonry; large sections on the west side have collapsed and the damage is progressing rapidly.

***Marduk Gate* (NH05)**

Named for the city's patron deity, the Marduk Gate at Babylon's western entrance was not as large or lavishly decorated as Ishtar Gate, Babylon's main entrance. Like all of the city's major gates, it lies at the end of a wide, straight road running to the ancient city's center.

Excavated partly by Koldewey and in 1973 by Sa'ad Abid al-Sattar, the SOAH rebuilt Marduk Gate in 1978 with modern, fired bricks and cement mortar laid adjacent to and on top of the mud-brick core of the Neo-Babylonian structure.[130] Ancient flooring was covered or replaced with a steel rebar and concrete slab base covered with cement tiles. On the north and south ends, the gate's brickwork edges were 'combed' to prepare for reconstruction of the adjoining inner city walls. This work never occurred.[131]

The Marduk Gate reconstruction was based on scant archaeological evidence. Water staining indicates inadequate drainage. The poorly reconstructed structure has settled unevenly due to the use of incompatible materials, creating several long, deep vertical cracks. A variety of structural problems pose challenges to the building's conservation.



Reconstructed Marduk Gate, isolated and removed from historic context.

129 Sami al-Kiflawie, *Assessment Study of the State of Archeological Monuments and Looting, Part 1 of 2,* (unpublished, Iraqi State Board of Antiquities and Heritage, 2012), 14.

130 WMF interviews with Eman Mohsen, 2012; interview with Ahmed Kamel, 2013.

131 S. al-Kiflawie (2012), 5-10.

***Hellenistic Amphitheater* (the *'Greek Theatre,'* NH06 and NH07)**

Theatres and gymnasia were essential elements of the Hellenistic city. The theatre and adjoining gymnasium at Babylon were built during the Seleucid period (perhaps under Alexander), and the theatre was rebuilt during the Parthian period.



Saddam's viewing box at the Hellenistic Amphitheater.

Using the ancient site plan a new theatre complex was built in stages starting in the late 1970s, to host cultural events.[132] The first work phase recreated the courtyard, lower seating areas, and modern amenities in the wings. This was to provide facilities for culture and arts productions as well as a small Alexander the Great Museum for displaying antiquities dated after the Neo-Babylonian period.[133] In the mid-1980s, in preparation of the Babylon Festival, a second phase enlarged the seating by adding an upper level and viewing box for Saddam Hussein. The scant original masonry was subsumed and left under the reconstruction; modern fired bricks, cement and steel rebar were used throughout. Although the original floor plan was partly followed, the reconstruction resembles no known form of Hellenistic amphitheater and raises the question of whether it should be treated as primarily an ancient monument or modern building.

The site was vandalized in 2003. The gymnasium area was set on fire destroying most of the portico and adjoining rooms, electrical and plumbing systems were stolen, and decorative marble cladding was stripped from the viewing box. At this stage, routine maintenance was abandoned.

Administration of the unsecured Greek Theatre is now unclear. Although it is officially part of the Babylon Cultural Landscape and Archaeological City under the SBAH's authority, the Babil Governorate occasionally uses the theater for events without the SBAH's permission or participation and despite the lack of utilities and services.



Processional Way, north of Ishtar Gate.

***Processional Way* (NH25-26 and NH28-29)**

The Processional Way was both a grand city entrance and the site of ceremonial activity. Cuneiform texts describe the New Year Festival, when the gods had left Babylon on the river to reach the New Year Temple (whose location has not been identified) and returned to the city on the Processional Way. Major building projects under Nabopolassar and Nebuchadnezzar II focused on the Processional Way. Its surface was repeatedly raised, partly in response to the high water table, and, as a result, increasingly impressive architecture lined the route. The final form, flanked by lions in glazed brick relief, was excavated by the Deutsche Orient-Gesellschaft and along with the Ishtar Gate formed the heart of Koldewey's early investigations.

Following Koldewey's lead, the Processional Way has been subject to significant interventions. A stretch was reconstructed during the Revival of Babylon project, the walls built of modern, fired brick. Here as elsewhere, original paving is visible. South of the restored sections, military vehicles damaged the ancient paving in 2003–2004.

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132 International Audit Commission, *Report on Babylon Current Condition,* (Iraq, 2004), 536-540.

133 "First International Scientific Conference on Babylon, Assur and Himreen," *Sumer* 35, 148-149.



The scale of Babylon's reconstruction is best seen at the Southern Palace. Gaps left by the theft of Saddam inscription bricks in 2003–2004 appear at the top of the wall in the foreground.

***Southern Palace* (NH20)**

The largest of Babylon's palaces, the Southern Palace contained some five hundred rooms arranged around five large and 50 smaller courtyards. Built by Nebuchadnezzar atop the previous palace of Nabopolassar it was the principle royal residence throughout the Neo-Babylonian and Achaemenid periods, and probably used by Alexander the Great.

For centuries baked bricks were removed from the Southern Palace to use in other buildings. By the time of the German excavations little of the palace proper remained except for its foundations and wall fragments. A floor plan was reconstructed based on the foundations and some aboveground traces (fragments of glazed brick decoration in the throne room and central courtyard) discovered by Koldewey's team. The excavations also uncovered the vaulted building above which Koldewey proposed the site of the Hanging Gardens. A large archive with hundreds of cuneiform clay tablets found in the basement of this building suggest it was a center for large scale administartion of food stuff, and the vaulted chambers may have been storage facility. Outside the west wall of the palace was an *apadana* (columned hall) of the Achaemenid period. In the palace, glazed brick fragments from ancient decorative reliefs of types common in Achaemenid palaces were also excavated.[134]

Starting in 1978 the palace was extensively excavated, and in the mid-1980s it was the target of Saddam Hussein's most ambitious reconstructions. As elsewhere, these were executed hastily directly on top of the original structures and largely following Koldewey's floor plans. Later phases used modern, fired bricks, some bearing Saddam Hussein's inscription, to emulate those stamped by Nebuchadnezzar and previous kings.

Except for the floor plans, the reconstruction probably bears little resemblance to the original palace, but despite damage to the original structure, the building is stable. Decay is mainly evident in buckled paving tiles, collapsed drainage, and other details related to the general lack of routine maintenance.

134 Koldewey, R. *Die Königsburgen von Babylon, Vol. 1, Die Südburg*. Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 54 (1931). Pedersén, O. *Archive und Bibliotheken in Babylon*. Abhandlungen der deutschen Orient-Gesellschaft 25 (2005). The glazed brick decoration adopted by Persian kings is best seen at Susa, where spectacular reliefs derive from Neo-Babylonian models.

***Inner City Walls between the palaces* (NH11 and NH16-18)**

The Neo-Babylonian inner city walls were perhaps those described by Herodotus, 'so thick that it was possible to turn a four-horse chariot on top of them.' This may have been true as the six and a half-meter thick main inner wall, known as Imgur-Enlil, may have, at some point, existed at ground level in the seven meters between the banks of defence. A triple ring of walls separated by ditches enclosed the eastern side of the inner city and perhaps other parts as well, while a single quay wall, its latest incarnation built by Nabonidus, followed the riverbank. A Nebuchadnezzar II text records that a wide moat lay within older walls from the Kassite and Old Babylonian periods, but these have not been identified.

Remnants of original wall plaster were discovered in 1978.[135] The 1980s preservation activities sought to present a more complete and massive wall to the public, so the east half was thickened with modern unbaked brick masonry to resemble the original base. A cap of modern, fired brick was added to form an even surface, and like the northeast section of inner city wall, the top layer covered with tiles sealed with concrete and equipped with gutters to direct rainfall.[136]

These actions have hastened destruction of both the original fabric and the reconstituted section of new masonry. Massive masonry structures like the inner city wall are not static. As the foundations settled, the inflexible cap broke, leaving a series of longitudinal cracks across the top surface. The split cap provided channels for rainwater to penetrate deep into the wall core and encouraged vegetation to grow in the fissures. Poor drainage patterns around the wall's base concentrated moisture resulting in the collapse of the wall's outer portions.



Eastern portion of reconstructed inner city walls between the Northern and Southern Palaces.

The west half of the wall was not reconstructed and has suffered less. But the combing of the vertical surfaces, poor drainage, and animal burrows have fostered large vertical erosion troughs, as have a series of Iraqi military shooting trenches (approximately 75 centimeters deep) cut into the top of the wall. One of these trenches collected water that undermined the structure causing a large-scale collapse in 2010.

In 2012, under WMF direction as part of the Future of Babylon program, the shooting trenches and other holes were temporarily filled and the surface slopes modified to improve drainage. Vegetation overgrowth and modern accretions were also removed. The wall was braced and, in the east, surface cracks sealed as a measure to prevent collapse. Exploratory trenches were dug through modern infill to determine the foundations of the walls and a set of architectural drawings documenting existing conditions were completed for the wall's entire length.

135 Damerji, *Babylon* (2010), 119.

136 Mahmoud Bendakir, "Babylon Archaeological Site Practical Training Workshop, Third Mission Report" (study commissioned by WMF, November 2011), 97.



Ruins of the Northern Palace core standing more than ten meters.

Northern Palace (NH22)

Built by Nebuchadnezzar II, the Northern Palace lies north of the Southern Palace, with the two structures separated by the inner city walls. A large archive with more than 1000 cuneiform tablets was excavated by Koldewey. The tablets dealt with the property of the Persian governor residing in the palace before destruction by a large fire around 400 B.C. This palace contained the so-called 'museum of ancient artifacts' collected by the Neo-Babylonian kings, including royal stelae.[137] According to Muayad Said Damerji, Nebuchadnezzar kept spoils from Hittite and Aramaic kingdoms to display to citizens here.

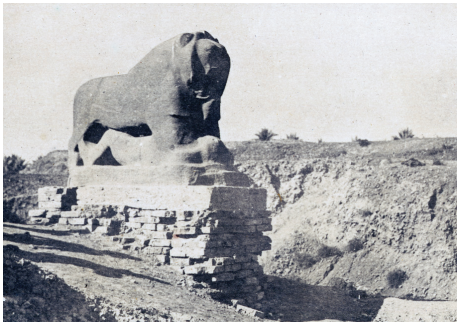
Like the nearby Southern Palace, the Northern Palace was arranged around a series of square-shaped courtyards with a double throne room. Brick thieves carted off most of the palace, leaving only the difficult-to-harvest bonded masonry masses that stand today.

The Northern Palace was spared the massive reconstructions that damaged the Southern Palace and is the only relatively untouched archaeological ruin in the area. In 1992 and 2002 the SOAH performed limited re-excavations to better present the site.[138] The contrast to the nearby reconstructed Southern Palace and the modern palace built by Saddam Hussein is striking. Despite its archaeological value visitors freely roam the unsecured ruin trampling brick fragments, many of which bear inscriptions.

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137 Koldewey, R. *Die Königsburgen in Babylon, Vol. 2, Die Hauptburg und der Sommerpalast Nebukadnezars im Hügel Babil*. Wissenschaftliche Veröffentlichung der deutschen Orient-Gesellschaft 55 (1932). Pedersén, O. *Archive und Bibliotheken in Babylon*. Abhandlungen der deutschen Orient-Gesellschaft 25 (2005). Damerji, *Babylon* (2010), 62.

138 WMF interview with Elham Hashim Ali, 2011.









Lion of Babylon (top to bottom) photographed during the Koldewey excavations; razor wire installed by the SBAH to prevent visitors from climbing the monument; 2013 stabilization of the concrete encasement; local village workers finishing the re-cast base.

***Lion of Babylon* (NH27)**

The date of the Lion of Babylon's rediscovery is unclear, though it may be the unfinished stone 'idol' that the Abbé de Beauchamp uncovered during his visit in the late eighteenth century.[139] The Lion was re-excavated by Claudius Rich in 1811.[140] Robert Koldewey recorded a story associated with the Lion of Babylon:

> [The left arm of the man beneath the lion] has been chopped away by superstitious hands, and he is marked all over by the stones and flint balls that have been, and are still, flung at him; for he is regarded as the much-feared "Djin." On one side the Arabs have dug out a deep hole in his flanks, which is now filled with cement. The reason of this is as follows. A European once came here, and inquired about the lion, which he had probably read of in the books of earlier travellers. The Arabs showed it to him, and after looking at it attentively, he chose from among the small holes in the basalt the right one, into which he thrust a key and turned it, whereupon his hand was immediately filled with gold pieces. Having accomplished his practical joke, the traveller went his way, unable as he was to speak Arabic. The worthy Arabs, however, in order to render the treasure available, hammered this hole in the lion, which must have caused them immense labour, for the stone is extremely hard.[141]

The story suggests that Babylon's rare visitors understandably attracted attention and prompted speculation as to their work and motives. The perception implied is that foreign visitors to ancient sites sought gold, and in some cases either found or were provided with it. The story also reflects the visitors' inability to speak Arabic and resulting communication problems that allowed this perception to develop.

It is not known when the lion arrived at Babylon. Photographs from 1919 show British soldiers of the Mesopotamia Expeditionary Force posing with the lion; eighty-five years later, soldiers stationed at Camp Alpha did the same. The lion appeared on stamps and banknotes throughout the twentieth century, and was prominent in the imagery used to promote the Revival of Babylon project.

Today the lion stands on a brick and rubble base started by Claudius Rich and added to during mid-twentieth-century excavations, its surface covered with decorative concrete renders. In 2012, to discourage visitors from climbing, the SBAH wrapped the lion with razor wire. World Monuments Fund intervened in 2013 as the base was deteriorating and the statue's stability threatened. During this time the lion was cleaned, reinforced, and restored to its modern appearance. Hardscape improvements surrounding the lion were also undertaken and remain to be completed in 2015.

139 Rich, *Narrative of a Journey to the site of Babylon,* (1839), 303.
J. E. Reade, "Early Travellers on the Wonders: Suggested Sites," x.; I. L. Finkel and M. J. Seymour, eds., *Babylon: Myth and Reality* (London: British Museum Press, 2008c), 112-117.

140 Rich, *Narrative of a Journey to the Site of Babylon* (1839), 36.

141 Koldewey, *The Excavations at Babylon* (1914), 160.



Ishtar Gate after partial removal of the concrete flooring, and 2012 installation of a crack monitoring system (right).

***Ishtar Gate* (NH13)**

Babylon's main northern entrance, the Ishtar Gate, was the largest and most elaborate of the gateways. Nabopolassar and Nebuchadnezzar II, who erected the structure, probably rebuilt it several times and added the glazed bricks. The Ishtar Gate connected the Northern Palace with the sanctuary of Marduk (the Esagila Temple in the heart of Babylon) and the ziggurat. The procession of the gods passed through the Ishtar Gate during New Year celebrations. Kings and other historic dignitaries used the gate to formally enter and leave the city.

The massive gate was built in the same period as the Processional Way, and likewise in its latest phases was covered in glazed brick reliefs. Although the animal motifs that decorated the gate had multiple meanings, the *mushhushshu* dragon was associated with Marduk and his son Nabu, and the bull with the storm god Adad. The lions lining the Processional Way were most strongly associated with Ishtar, goddess of war. All of these powerful animals were used in reference to multiple deities. Marduk, for example, is often likened in texts to a raging bull.

The Ishtar Gate was initially excavated by the Deutsche Orient-Gesellschaft (in 1903 and 1910) and the Nebuchadnezzar II-era glazed surface material previously cut away by brick-miners was collected and removed. Koldewey excavated most of the relief fragments that were later reconstructed in Berlin under the supervision of Walter Andrae. The lower levels feature unglazed brick reliefs that presumably continue underground. Koldewey attempted a deep sounding that was blocked by the water table before he could reach the base of the gate's foundations, but they continued for several meters below ground level.

The unglazed gate beneath the colorful decorations was subject to interventions in the late 1950s through the early 1960s and later during the Revival of Babylon Project. These efforts mainly addressed site presentation and the damage caused by the high water table that exacerbated masonry decay. The lower courses of brickwork were replaced and some animal reliefs moved higher up the facade. Access staircases were added, a drainage and cistern system dug and capped with cement flooring, and historic masonry in-filled from behind with modern fired bricks.[142]

142 WMF interview with Wahbi Abdel Rezzak, 2011.







Ninmah Temple's internal courtyard (top), timbered roof collapsed from termite infestation and debris clearance in 2009.

These inventions only hastened water damage to the monument. The large-scale re-grading of the surrounding landscape funnels water into the Gate. The non-porous cement pavement drives the evaporation process up into the walls and drainage channels rain down the facade, eroding the animal reliefs, many of which have disappeared since the gate was excavated.

Ishtar Gate suffers few major structural problems except for one critical vertical crack on the south facade of the western wing. A preliminary examination revealed a deep crack more than 4 cm wide that breaks the wall from top to bottom and bisects the body of a dragon figure. Lateral forces caused the fissure and differential settlement probably associated with the masonry in-fills of the 1980s.[143]

Under the direction of the SBAH and supported by WMF, work began at Ishtar Gate in 2010 with the compilation of detailed documentation drawings. The site was scanned to produce an accurate three-dimensional model with which the SBAH's newly formed documentation work group completed a set of two and three-dimensional existing condition architectural drawings. This was the first comprehensive documentation of the monument; CyArk, an agency based in the United States, completed scanning. Debris was cleared from the cistern system and many modern additions removed, including the concrete slab paving 25cm thick. Stabilization and monitoring procedures followed in 2013 in preparation for further large-scale interventions.

Ninmah Temple (NH10)

Located near the Ishtar Gate, *E-mah*, temple of the mother goddess Ninmah, follows the traditional Babylonian temple plan: a central courtyard with a well and a *cella* (inner chamber) with a niche for the statue of the goddess. Many clay tablets describing the construction of the temple were found in the temple.[144] It is associated with the angels Harut and Marut, mentioned in the Quran as having revealed hidden (i.e. magical) knowledge at Babylon.[145] In another, non-canonical version recorded by later historians and students of Quranic exegesis, the angels mock human weakness and god challenges them to visit Babylon and resist sin. They fail and are thrown down a well that according to tradition is the well in the Ninmah Temple. Discovered during nineteenth century, British excavations and later investigated by German archaeologists, the temple contained a quantity of cuneiform tablets bearing information about the temple.[146]

Following the work of Koldewey, the SOAH led by Taha Baqir excavated Ninmah Temple in the 1960s. Preliminary assessments made by the SBAH and WMF team in 2011 suggest that it was almost completely reconstructed by 1966, inflicting irreversible damage on the remains of foundations and some walls.[147] As the first Babylon monument to be reconstructed, Ninmah Temple served as a model for the 1980s reconstructions.

143 Ibid.
144 WMF interview with Ahmed Kamel, 2013.
145 Sura al-Baqqara, 102.
146 Olof Pedersén, "Archives et bibliotèques à l'époque néo-babilonienne," ed. Béatrice André-Salvini *Babylone* (Paris, Louvre, 2008), 177.
147 Mahmoud Bendakir, "First Mission Report," (study commissioned by WMF, April 2010), 80.

The entire roof was replaced in the 1990s after the northwest corner collapsed, weakened by excavations at Ishtar Gate in the 1980s. Today, poor ground level drainage contributes to a high concentration of humidity and salts at the base of the temple walls causing erosion that will eventually lead to further collapse.[148] The incompatibility of unbaked and modern fired brick masonry also weakens the structure and the replacement roof, which suffered extensive damage and partial collapse from termites, must be stabilized before further studies are conducted to determine a conservation plan. Until then, the site constitutes a danger to visitors and has been locked during documentation, an ongoing process initiated in 2013.



Temporary shoring erected at Ishtar Temple.

Ishtar Temple (SH07)

Excavated by Koldewey and more recently reconstructed by the SOAH, the Ishtar Temple was one of Babylon's major shrines with Ishtar of Agade figuring prominently in the Babylonian pantheon. Like the Ninmah and Nabu-sha-Hare temples, the Ishtar temple follows a classical Babylonian broad-cella floor plan but it is also known to have been rebuilt at least three times. The temple was one of several areas on site where significant cuneiform archives were found.

After decades of exposure to the elements, the SOAH undertook a first phase of reconstruction in the late 1970s reconstituting foundations for one portion of the temple. It was completely reconstructed between 1978 and 1979.[149]

Poor ground drainage, a lack of maintenance, and reconstruction-related damage has diminished the structural integrity of the lower walls, and may lead to the building's complete collapse. A vertical crack in the temple's southeast corner requires urgent intervention and was temporarily shored in 2011. The temple is in poor condition as a result of an inappropriate mix of building materials, differential ground settlement, fragile substructures, and roof leakage.[150] The collapse of the entire east wall could be imminent.

To address this issue WMF and SBAH installed temporary shoring at the southeast corner in 2011; once the temple is completely documented (ongoing in 2013), further stabilization measures will take place towards conservation using the appropriate techniques and materials.

148 Ibid., 155-166.

149 WMF interviews with Eman Mohsen, 2012.

150 Bendakir, "First Mission Report," (study commissioned by WMF, April 2010), 75-77..





Northern view of Nabu-sha-Hare Temple and adjacent reconstructed structures (above) and the historic and modern wall plasters of the internal courtyard.

Nabu-sha-Hare Temple (SH03)

Nabu, god of writing and scholarship, was the son of Marduk, Babylon's patron deity. His temple, located between Etemenanki and the city's royal palaces, was the place where kings received the royal sceptre as part of their investiture. The temple (whose official Sumerian name, *Egidrikalamasuma*, means 'house that confers the scepter to the country') contained many cuneiform school tablets. [151]

In 1979–1980, Iraqi excavations directed by Danial Ishaq revealed the lower portions of a mud-brick wall up to four meters high dating either to the late–Assyrian period (Esarhaddon, 680–669 B.C.) or the early years of Nebuchadnezzar's reign. Substantial quantities of original plaster and painted surfaces were preserved in the courtyards, probably thanks to its infill by Nebuchadnezzar as part of work to raise the level of the Processional Way.[152]

The preservation of such a large portion of lower wall distinguishes the building among temples at Babylon. The preservation is partly due to the fact that it was constructed under Assyrian rule using unbaked mud bricks, which were less desirable to brick-diggers than the baked Nebuchadnezzar bricks found in much of the site.[153] The site was also built over, later used as the foundation for further construction.

The temple's reconstruction as part of the Revival of Babylon project was poorly executed using inappropriate materials, and the building was not properly documented prior to the work. The southwest corner, weakened during excavation, was partially rebuilt and reburied to provide stability. This intervention encouraged moisture penetration. Within a few years, the temple began to disintegrate. Repairs made in the mid-1990s were inadequate and large sections of the lower original masonry and modern roof have collapsed.[154] Incompatible modern wall plasters have caused the collapse of sections of original wall masonry and obliterated most traces of ancient decorations.

In 2011 and 2012, Nabu-sha-Hare Temple became the focus of priority stabilization measures under the Future of Babylon project. Approximately 400 square meters of modern backfill was re-

151 A. Cavigneaux, "Les fouilles irakiennes: le temple de Nabû sha Haré," ed. B. André-Salvini, *Babylone* (Paris: Hazan / Musée du Louvre Éditions, 2008), 532.

152 Danial Ishaq, "The Excavations at the Southern Part of the Procession Street and Nabu ša Hare Temple," (1985), 31.

153 Ibid.

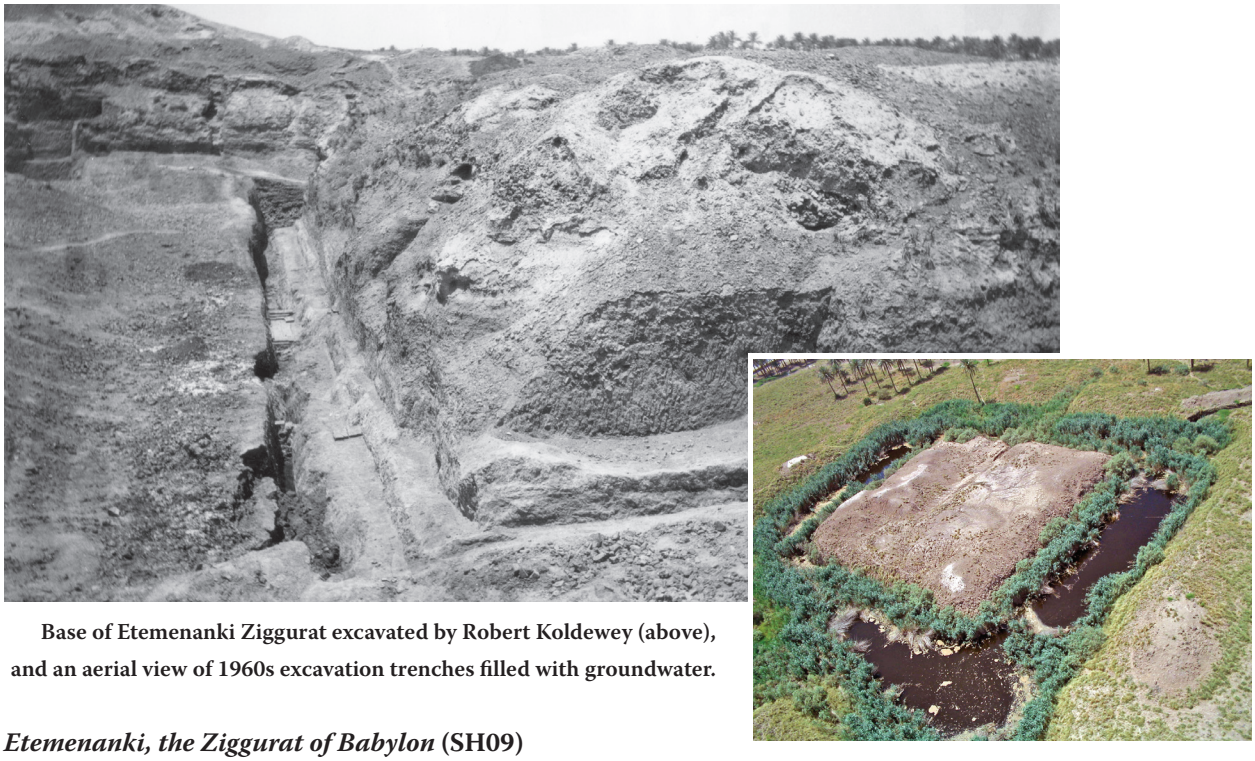
154 Bendakir, "First Mission Report," (study commissioned by WMF, April 2010), 25-27.

excavated from around the building and the original courtyard paving tiles revealed. All interior spaces were braced and holes in the roof covered pending development of a final conservation plan. A set of existing condition, measured architectural drawings was completed by the SBAH and WMF to enable future conservation planning. Tests were also undertaken to determine the extent of original plaster left remaining in the courtyards.

***Babylonian Houses* (NH08; SH04-06; and SH08)**

Early excavations in Iraq and elsewhere generally overlooked domestic architecture, but their importance to archaeologists became clear as the discipline evolved. The German excavations of 1899–1917 identified street and building plans and traced the *Merkes* (center), a large residential area.

In the 1980s, SOAH excavated three Babylonian Houses and a smaller temple between Nabu-sha-Hare and Ishtar temples. These were reconstructed based on their association with the major nearby temples and the original earthen building foundations to show examples of traditional priest and temple caretaker houses from the period. They also completed the line of buildings stretching from Nabu-sha-Hare to Ishtar temples. A fifth house (NA08) lies behind the Hammurabi Museum. Aside from the floor plans there is little evidence from which to extrapolate accurate recreations. Like the nearby Ishtar Temple reconstruction, backfilling was never considered; the only recognized course of action was to preserve what Koldewey exposed.[155] The houses, made of a mix of modern unbaked and fired brick, suffer from poor surface drainage and lack of maintenance.



Base of Etemenanki Ziggurat excavated by Robert Koldewey (above), and an aerial view of 1960s excavation trenches filled with groundwater.

***Etemenanki, the Ziggurat of Babylon* (SH09)**

Examples of the ziggurat, a common architectural form in ancient Mesopotamian cities, can be found from Nimrud and Ashur in the north, to Ur and Uruk in the south and Choga Zambil, Iran, in the east. Babylon's is neither the oldest nor the best preserved but its importance in Mesopotamian culture and its symbolic significance makes it unique. Etemenanki ('foundation platform of heaven and earth') was once the largest of these stepped temple-towers. It is cited in ancient Greek accounts as the Temple of Belus, and in the Bible as the Tower of Babel.

155 WMF interviews with Eman Mohsen, 2012.

Varying descriptions survive: its imposing footprint (91m by 91m) is recorded in Babylonian texts and has been confirmed archaeologically. At a height of around 91m, the ziggurat towered over the city and surrounding plains. The temple at the top of was probably covered in the same blue-glazed bricks as the Ishtar Gate.[156] In antiquity, few had access to the temple where secret rituals took place. No records of these rites survive, only speculative descriptions in classical sources.

The structure was augmented, partially demolished and rebuilt on several occasions. Sennacherib made a point of razing it along with the rest of Babylon. His son Esarhaddon and grandsons Ashurbanipal and Shamash-shuma-ukin began a reconstruction that was halted by the civil war between the two brothers.





Base of a bridge pier as found by Koldewey (above) and the site today, a tangle of overgrowth and broken bricks.

The ziggurat was a major feature of Nebuchadnezzar's building program. Ironically, little of the structure survives partly due to the high-quality baked bricks he used. As elsewhere, these bricks were systematically extracted and recycled for new construction over centuries. Nebuchadnezzar's structure survived into the Persian period, until a rebellion in Babylon provoked its destruction by Xerxes.

Alexander the Great famously intended to restore Etemenanki, but died having succeeded only in clearing the mountain of rubble left by Xerxes' demolition, a feat that was said to have involved ten thousand laborers for two months. A Sasanian fort was later built on the ziggurat's ruins. Throughout subsequent centuries it was mined for reusable brick particularly for the outer surface of the ziggurat. German excavations in the 1960s recovered the base of the ziggurat's outer surface and their trenches now form a moat around the unbaked mud brick heap. The foundation of the outer surface of baked brick is now under water in the trenches.[157] The site is currently inaccessible to visitors.

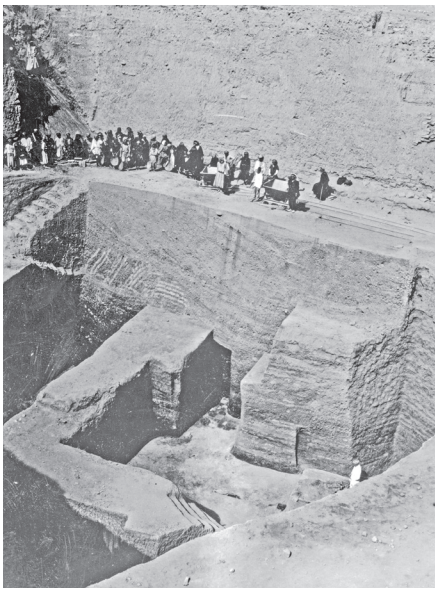
Ancient Bridge Piers (SH15)

Koldewey's workers unearthed several piers of a bridge that once spanned the Shatt al-Hillah linking Babylon's western and eastern quarters. Baked bricks used in the piers were unstamped, but Koldewey thought the bridge dated to either Nabopolassar's reign or the early period of Nebuchadnezzar. It is possible that this is the 'stone' bridge referred to in classical sources though neither stone nor the wooden supports for which Koldewey found evidence survive.

The bridge was re-excavated in the 1970s and again in the 1990s, when an asphalt road and utility lines were installed to serve the Babylon Conference Center. Koldewey's excavation pit and those of subsequent investigations, now full of shrubs and trees, is often used as a shelter for livestock that have trampled and broken the exposed masonry.

156 A. R. George, "A Tour of Nebuchadnezzar's Babylon," *Babylon: Myth and Reality*, 55.

157 Excavations under the direction of Hansjörg Schmid in 1962 and Jürgen Schmidt in 1967. H. Schmid, *Der Tempelturm Etemenanki in Babylon*, Baghdader Forschungen 17 (Mainz: Philipp von Zabern, 1995). J. Schmidt, "Babylon," eds. Deutsches Archäologisches Institut, Orientabteilung, *Deutsches Archäologisches Institut, Orientabteilung, Außenstelle Baghdad. 50 Jahre Forschungen im Irak 1955–2005* (Berlin: Deutsches Archäologisches Institut, Orientabteilung, 2005), 63-70.





Koldewey's excavation pit at Esaglia Temple (left) alongside the site today suggests the enormous effort invested to unearth the monument.

***Esagila Temple* (SH16)**

Like other Mesopotamian cities, Babylon was filled with temples and shrines, but by the end of the second millennium B.C. the city had acquired a special religious status. Marduk rose to the head of the Babylonian pantheon and his temple, Esagila ('house whose top is high') was the most important in the city and one of the great shrines of the ancient Near East. Esaglia, seat of Marduk and his consort Zarpanitu, contained a large shrine to their son Nabu, patron deity of Borsippa, as well as smaller shrines to other gods.

The statue of Marduk resided here, and had its own eventful history. Looted by Elamite invaders, recovered by Nebuchadnezzar I, stolen, perhaps destroyed, and replaced by the Assyrians, this most sacred of icons was repeatedly involved in the power politics of the day. Koldewey's floor plan shows the probable location of Marduk's sanctuary, which Nebuchadnezzar II claimed to have covered with gold, 'that it might shine like the sun.'

The presence of Esagila temple suggests that Amran Hill covers an early part of the city and that the remains of Hammurabi's Babylon may well be buried deep beneath the Neo-Babylonian layers. This area was occupied continuously, as indicated by substantial Hellenistic and Parthian remains, and the Islamic shrine of Amran ibn-Ali. The mound of Amran poses formidable challenges for the excavator. Koldewey had to dig more than twenty meters to reach Esaglia's paved floor; the temple's floor plan (showing the probable location of Marduk's sanctuary) was recovered not by open excavation but by tunnelling. Koldewey writes:

> We dug out narrow galleries following the wall lines deep down, and rendered them accessible from the hill by means of narrow shafts. On one side of this shaft stepped recesses were constructed, of a man's height, each of which afforded standing room for a workman. As many as twelve men could stand in these recesses one above another, who could reach the baskets of earth and pass them on to the next man in succession without changing their place.[158]

Traces of this remarkable endeavor are still visible in the form of trench cut through Amran Hill to a larger square pit approximately 75 meters wide and 22 meters deep. The pit walls are lined with the detritus of numerous layers of human habitation, accumulated after the temple had ceased to exist.

158 Koldewey, *Excavations at Babylon* (1914), 214-5.



The Ottoman-era Shrine of Amran ibn-Ali atop the same mound containing Esagila Temple.

***Shrine of Amran ibn-Ali* (SH17; SM51; and SM95-99)**

The tomb and shrine of Amran ibn-Ali sits atop Amran Hill south of the main Babylon reconstructions. Although it is not a principle Shi'a pilgrimage destination, Amran ibn-Ali receives an increasing trickle of visitors.

The tomb lies beneath an Ottoman-era shrine and is accessed by a flight of recycled-brick stairs descending into the mound. While fighting beside his father, Ali ibn-Abi Talib (Imam Ali), Amran was mortally wounded in the battle of al-Nahrawan in A.D. 658 (38AH). Two compatriots also died as Imam Ali's army moved toward Babylon.[159] It is said Imam Ali chose the site of his son's tomb for its height and historical importance. Seven Ottoman sheikhs were buried in proximity.

The tomb of Amran ibn-Ali is associated with miraculous healing.[160] Water from the courtyard well, purportedly twenty-seven meters deep, is said to cure infertility, skin diseases and headaches. A buckthorn tree, known for its medicinal purposes, was planted near the well.

Portions of the shrine date to different periods; the oldest is the archaeological tell on which the shrine rests and that supplied some of the materials used in the shrine's construction. The central shrine, a double-domed structure, possibly dates to the eighteenth century and is currently controlled and managed by the Waqf, Shi'a Endowment.[161] In the twentieth century a walled courtyard and new ancillary structures enclosed the shrine.

Following the collapse of civil authority in 2003, several modern structures were added to the shrine atop archaeological layers. With emphasis on the financial aspects of Iraq's pilgrimage tourism economy, new building additions continue to expand the shrine's modern footprint and the Shia' endowments' claim over the enlarged site. Resting on top of one of Babylon's most important archaeological zones, the SBAH has been unable to halt these illegal encroachments. A complete condition analysis and historical documentation study would provide further information for site planning purposes.

159 WMF interview with Sheikh Salah Ali, 2012; Hasseoun Aboud Kadum, "Summary of the Life of Amran Omar son of Ali," unpublished, 2010, 1.

160 Kadum, 2.

161 The Iraqi Ministry of Religious Affairs now has three independent sections, one for Shi'a, Sunni and Christian and other religions. (See 'Stakeholders: an Initial Assessment')

Modern Structures at Babylon

Most of the buildings at Babylon are modern (early twentieth century—present) and are private or government-owned.[162] All modern buildings and alterations came at the expense of archaeological remains. For many decades, the desire to exploit the site for a variety of purposes trumped potential losses of cultural fabric, which were very rarely assessed prior to interventions.

This section highlights state-owned buildings whose construction and use reflect attempts at site management however partial or inadequately planned. WMF and SBAH conducted a modern building survey to inform strategies and budgeting for the structures' rehabilitation, adaptive reuse or demolition. Future survey work will calculate square-meter floor space to aid real estate planners, including the Ministry of Tourism and Antiquities, in its rehabilitation of commercial facilities at Babylon.

The Iraqi Government built site administration facilities at the site during the 1950s-1960s. Support buildings were added to the visitor areas near the Southern Palace and Processional Way during this time. In the 1980s, in keeping with Saddam Hussein's claim that Babylon would 'rise from the dust', clusters of buildings were added to the central archaeological zone to serve the Revival of Babylon Project and accompanying festivals. This frenetic construction activity, designed to showcase the regime, ignored the practical concerns of commercial real estate development. Some buildings serving the same purpose were erected side by side while others were built far from the main visitor circulation patterns.

The number of visitors to Babylon peaked at the outset of the festivals, not least because the 'archaeological survival of Babylon' was considered a 'patriotic national and international duty.'[163]

Current visitor facilities consist of two public bathroom blocks. One, between the casino and Hammurabi Museum buildings, is maintained by SBAH. The other, at the base of Mount Saddam, is maintained by the Babil Governorate, as is the Babylon Conference Center.



The 'Al-Sayed Restaurant', one of the abandoned, vandalized structures that make up Babylon's tourist village compound.

162 There are several privately owned buildings in the southwest corner of the core of the site, built without SBAH permission and lacking proper legal titles. As of 2013 new buildings were still being added.

163 Falah al-Jubbawi, *Tour of the City of Babylon*, printed by Babil Printing Press, 2004.

Most of the modern buildings were stripped of every fixture during the upheaval between the retreat of Saddam Hussein's forces and the 2003 establishment of Camp Alpha; they are now abandoned. Some that were temporarily utilized by the military forces were left in disarray. These ghost town edifices greatly diminish Babylon's ambiance.

Choices about redeveloping commercial properties would be aided by further examination of the potential of these buildings through a carrying capacity study conducted in parallel with condition assessments of building envelopes, utility lines, sidewalk and paving. Demolishing structures that compromise the site will allow for a fresh take, reinforcing a new approach to Babylon's management. Reducing the modern footprint will help restore the site's authenticity while making more green space available for visitors.

The following building descriptions have been clustered owing to their proximity and for the purpose of reuse planning.

The Nebuchadnezzar Museum and its surroundings
(SM13; NM27-44; NM70-73; and NM86)

Built in 1951, the Babylon Site Museum (NM42), renamed the Nebuchadnezzar Museum, was the first modern construction addressing visitors' interests and needs. A half-scale replica of the north face of Ishtar Gate (NM70, the 'blue gate') was added in 1954 along with a picnic ground and garden as well as a fountain sculpture featuring a copy of Hammurabi's Code of Law. Together these served as early visitor facilities.





The Nebuchadnezzar Museum and a PRT contract worker assembling new security doors.

The two-story Babylon Casino (NM27) was built in front of the blue gate in 1970, with a restaurant, nightclub, and expanded parking area. Constructed in the 1960s, the excavation house (NM43) behind the museum was enlarged in 1980 in preparation for the Revival of Babylon Project. Several SBAH staff lived there until 2003.[164] A small guesthouse (NM73) was built behind the casino and to house site guards another cluster of buildings (NM35-40) in a former picnic garden. The buildings in the area were not designed as part of a centralized plan and appear inconsistent with their environment and one another.

After its looting in 1995, the museum and courtyard were enclosed.[165] From then on the museum exhibited only plaster casts of objects, site models, display panels, and an enameled lion from the lower part of the Processional Way assembled from glazed brick fragments.[166]

From the spring of 2003 to the end of 2004 Camp Alpha used buildings in this cluster. Several which were previously damaged, including the Nebuchadnezzar Museum, received maintenance by Polish military forces.

In 2010, the Babil Provincial Reconstruction Team (PRT) upgraded the museum at the request of the SBAH and WMF. Repairs included new electrical

164 WMF interview with Hadi Gata Musa, 2010.
165 WMF interview with Abdel Hussein Ghaneim, 2010.
166 This was one of five lions and bulls donated by Germany from the Koldewey excavations at the Processional Way.

systems, security improvements, air conditioning units and a new employee bathroom (NM72).[167] The courtyard paving and murals were revitalized, and the blue gate repaired. A separate public bathroom facility (NM26) was upgraded. The excavation house also received minor repairs.

Most of the buildings in the cluster are empty and/or partially collapsed, including a small well house (NM34) that once served the farming community of Old Kweiresh. The casino is vacant, stripped of all fixtures and the picnic-ground garden is overgrown.

***Hammurabi Museum* (NM25)**

Built in 1973 to house artifacts from the Old Babylonian period, the Hammurabi Museum stands alone, midway between the reconstructed Greek Theatre and the Nebuchadnezzar Museum.[168] In response to the 1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export, and Transfer of Ownership of Cultural Property (The Paris Convention), the SOAH demanded the return of the Code of Hammurabi stele kept in the Louvre Museum. The Hammurabi Museum was built to house it. As the Code of Hammurabi was never sent to Iraq, a gypsum copy was displayed in the museum along with other period copies and models.[169]



Abandoned Hammurabi Museum.

The Hammurabi Museum suffered little damage after 2003 and is empty but in good condition. The lobby and side rooms are too small to process large groups but the building contains a small theatre.

***Babylon Conference Center* (SM15-19; SM27; SM29-36; and SM50-51)**

This cluster of modern facilities, built to provide services for Saddam Hussein's palace and the Babylon Festival, is on the Shatt al-Hillah's east bank. During the Camp Alpha period the complex served as base headquarters with a helicopter landing strip in the southeast corner.

Although the complex lies within the archaeological site boundaries, the Babil Governorate administers the center, rather than the MTA and its agency, the SBAH. The Governorate uses many of these buildings, including two facilities for accommodation (NM50 and SM24-33) and a restaurant (SM16-17) operated under sub-contract by a resident of al-Jimjmah. Playing on Babylon's myth of sin, lower-priced rooms attract honeymooners and on Sundays and Thursdays ten or more rooms may be rented. Higher-end rooms are reserved for the occasional visiting dignitaries. The Babylon Conference Center rents meeting rooms (SM36) and a larger hall (SM15) for events, including student holiday gatherings at various times of the year. The entire area has security fencing and is guarded.



Babylon Conference Center dining hall, now a restaurant operated by an al-Jimjmah family.

167 PRT is a unit of the United States Government consisting of military officers, office diplomats, and construction experts implemented in Iraq and Afghanistan.

168 "First International Scientific Conference on Babylon, Assur and Himreen," *Sumer* 35, 148-149.

169 Two reasons why Iraq doesn't have claim to the Code of Hammurabi are: 1) the code was excavated circa 1900, predating The Paris Convention and 2) circa 1900 Susa, where the code was found, was part of Persia (modern-day Iran) and not Ottoman Iraq.







Saddam Hussein's Palace, a bedroom and throne Room (lower left).

***Former Palace of Saddam Hussein* (NM52)**

Saddam Hussein chose a site adjacent to Nebuchadnezzar's ancient palaces and overlooking the Shatt al-Hillah for this grandiose residence, built in the late 1980s (NM52). The village of Old Kweiresh was demolished and replaced by an artificial mound to elevate the palace (visible from up to 20 km distance). The man-made Lake Saddam and utilities buildings (NM46-48 and 55-57) were also added. There are no architectural drawings but the palace's floor space is estimated at 67,000 sq. m (720,000 sq. feet).[170]

Palace decorations evoke Babylon's past; murals depict scenes from ancient Babylon and Ur, the date palm motif from Nebuchadnezzar's palace is replicated in many rooms and bas-reliefs above doorways portray Saddam Hussein commanding his armies like the ancient royals.[171] On the ground floor a marble-clad throne room overlooks the Shatt al-Hillah.

The palace is partially ruined, stripped of nearly everything of value (i.e. sinks, window frames, doors, electrical wiring, balustrades) and lacks basic infrastructure. But it is structurally sound and full of the architectural details that typify Saddam Hussein's many residences.[172] Much of the marble and wood paneling remains but is covered in graffiti, mainly Iraqi but also American and Polish from the Camp Alpha period (an interesting artifact itself). Because of its prominent, intrusive presence, demolition remains a possibility but it would be exceedingly costly. Rehabilitating the palace would cost more, an estimated USD6 million, not including utilities infrastructure.[173]

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170 729th Facility Engineer Detachment, "General Repair Requirements and Cost Estimate for the Babylon Palace," report commissioned by Babil Provincial Reconstruction Team (2008), 3.

171 Simonwitz,"Head Trips: An Intertextual Analysis of Later Architecture and Sculpture Under Saddam Hussein" *International Journal of Islamic Architecture*, (2012), 73-74.

172 729th Facility Engineer Detachment, "General Repair Requirements and Cost Estimate for the Babylon Palace," 3-6.

173 Ibid., 7.

***Tourist Village* (NM09-21 and NM79)**

Located behind the Greek Theatre this cluster of buildings was designed for visitors. During the Babylon Festival, services included two restaurants, a bar, shopping bazaar, laundromat, and bathrooms (NM10–14 and 16–20).[174] The Tourist Village was built around an artificially-filled lake in a swampy natural depression assumedly left by the Shatt al-Hillah's shifting course.[175] The entire area (from west of the Homera Mound to behind the Hammurabi Museum) was raised using backfill from the Southern Palace excavations.[176] Water for the lake came from the Babil River (1.5 km away) via an underground pipeline and a pumping station was installed at the lake's edge.[177]

In the first days of the 2003 invasion, the entire complex was stripped and vandalized leaving only the buildings' masonry shells. Coalition Forces later occupied rooms in some buildings and carved a temporary access gate to Camp Alpha through the north end of Homera Mound. Today the site is deserted except for a guard tower and security shed atop the Homera Mound. These were donated by Italian security forces and are used by Iraqi Police.

***SBAH Provincial Inspectorate Headquarters* (SM53-68 and SM78-79)**

The Babil Inspectorate offices (SM58) were built in a fenced garden compound in the 1960s and its courtyards later enlarged and enclosed. Over the years additional housing was added, including four semi-attached units (SM62, SM64 and SM78-79) for select SBAH staff. A police station (SM53) was erected to the north and later used as a temporary artifact storage magazine.

The Inspectorate still operates from these buildings, with the recently partially refurbished Babil Inspectorate offices at the center. Several SBAH staff and their families reside in subsidized housing behind the offices. The police station is abandoned and in ruins, its roof collapsed in several places. The Provincial Inspectorate storage yard (SM65-68) is filled with abandoned machinery from the Revival of Babylon Project, some of which has been rehabilitated for the Future of Babylon project.

***Saddam Hussein Portrait and Statute of Hammurabi* (SM77)**

Many large billboards and signs were erected around and inside Babylon bearing presidential portraits and slogans as propaganda for the Saddam Hussein regime. As elsewhere in Iraq they were removed or used differently after 2003.[178] One of the last monumental portraits of Saddam Hussein is on the northern approach to Babylon. It was erected as part of the Babylon Festival improvements to the site. Wearing a suit and tie, Saddam stands in profile incised in stone on both sides of a three-story high stone frame, now scarred by barrages of bullets and grenades. Almost all the lower courses of marble cladding were carted away for reuse in kitchens and bathrooms throughout the area, but Saddam Hussein's image remains on one side and covered on the other by an image of Imam Ali.

In a roundabout at the opposite end of the street, a statue of Hammurabi stands on a pedestal facing north, the same direction as traffic leaving Babylon to welcome people to al-Hillah. The roundabout was abandoned when the Baghdad-al-Basra highway was diverted in 1986, and the fountain surrounding the statue is dry.



Statue of Hammurabi facing Babylon, a view that greeted travelers headed north toward Baghdad.

174 WMF interview with Meky Farhood, 2010.

175 The SOAH justified this intervention saying it re-instated parts of the historic shifts of the Shatt al-Hillah and de-salinated part of the landscape. Damerji, *Babylon* (2011), 58.

176 WMF interview with Ali Hashim, 2011; WMF interview with Meky Farhood, 2011.

177 Ibid., 2012.

178 Stephen Farrell, "Is this the Last Surviving Public Image of Saddam Hussein in Iraq?" *New York Times*, 18, Jan. 2011, http://atwar.blogs.nytimes.com/2011/01/18/is-this-the-last-surviving-public-image-of-saddam-hussein-in-iraq/

Military Remains and other Recent Landscape Alterations

(See *BM04, 'Existing: Military Remains and Other Damage'* map)

Babylon is littered with the traces of Iraqi, American, and Polish military activities of the past fifteen years. The military presence caused damage, as detailed in several accounts and summarized in a UNESCO report.[179] Long defensive trenches were cut through archaeological deposits; archaeological material were used to fill sandbags and HESCO Concertainers; heavy vehicles driven on ancient pavements and some monuments vandalized. Iraqi forces equipped the top of the inner city wall and Summer Palace with one-meter deep firing dugouts. Enlarging an area to serve as a helipad involved the use of chemically treated and compacted gravel to keep down dust. Camp Alpha was handed over to Polish forces in September 2003, and back to the Iraqi government at the end of 2004. Some Camp Alpha trash heaps remain, along with other abandoned materials.

A SBAH team under the direction of Maryam Umran Musa surveyed the military remains in 2006, using the reports by John Curtis for UNESCO (2005) and John Russell for the US State Department (2005) as base data. Some of the items recorded in these reports were removed by departing Coalition Forces, the Iraqi Police, the Babil Governorate, the SBAH and WMF, but much is still on site.



The Warsaw Gate guard tower built by the Polish military.

A BSMP survey revisited the previous assessments and updated the extant quantities of materials and visible impact caused by military presence mainly from Camp Alpha. This is illustrated in map BM04, Existing: Military Remains and Other Damage', but the Camp Alpha occupation is but one chapter of chronic modern misuse of the site since Koldewey's excavations. The survey of military remains informs the intervention priorities (including labor estimates and costs) for their removal (*see* Section III). The survey also helped the project evaluate the military episode as part of the site's historical narrative, and influenced the proposed interpretive program and site presentation discussed in Section III.

179 J. E. Curtis, *Report on Meeting at Babylon 11th-13th December 2004*, (London: British Museum, 2005); J. E. Curtis, *Inspection of Babylon on Behalf of UNESCO 25th to 29th February 2009*, http://www.britishmuseum.org/pdf/Babylon%20UNESCO%20Report_.pdf /; Poland Ministry of Culture, *Report on the Current Condition of the Babylon Archaeological Site (The Military Camp Alpha Site),* (Warsaw: Ministry of Culture of the Republic of Poland: Bureau of Defense Matters, 2009); E. C. Stone, *Assessment of Damage to Babylon based on Digital Globe Satellite Imagery*. Prepared at the request of UNESCO for the ICC Babylon Subcommittee, 2008; UNESCO, International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq, Sub-Committee on Babylon, *Final Report on Damage Assessment at Babylon* (Paris: UNESCO, 2009), http://www.unesco.org/fileadmin/MULTIMEDIA/FIELD/Iraq/pdf/Report%20on%20Damages%20in%20Babylon.pdfussell, Report on the Damage to the Site of Babylon, 2010, 95-112. See also: J. E. Curtis, "The Site of Babylon Today," eds I. L. Finkel and M. J. Seymour, *Babylon: Myth and Reality* (London: British Museum Press, 2008), 213-220; M. U. Musa, "The Damages Sustained to the Ancient City of Babel as a Consequence of the Military Presence of Coalition Forces in 2003," P. G. Stone and J. Farchakh Bajjaly, eds., *The Destruction of Cultural Heritage in Iraq* (Woodbridge: Boydell Press, 2008), 143-150; Parapetti, "Babylon 1978-2008," 1-45.



Residents of al-Jimjmah using air coolers complain of power outages.

Utilities Infrastructure

Electrical Network

The first electrical grid specifically for Babylon was installed between 1987 and 1989 in response to a 1986 order to build ten on-site restaurants for the Babylon Festival. High-tension lines and a back-up emergency line were laid from al-Hillah past al-Jimjmah under the road to the Shrine of Amran ibn-Ali. The line continued onward to the planned Babylon Conference Center and former Palace of Saddam Hussein. All electrical lines were buried. Within two years of installation the new restaurant facilities were completed as were a shopping bazaar and several bathroom blocks.[180] A second line, part of the regulated municipal grid, enters the site from near Marduk Gate.

Saddam Hussein's diwan, laid electrical lines for all visitors' facilities. The diwan initiated all projects that concerned the regime, and usually included an intelligence services component. Electricity for the remainder of the archaeological site was charged to the SOAH, except for the presidential viewing box in the Greek Theatre, installed by the diwan.

The SOAH installed electricity at the monuments so performances pertaining to the Babylon festivals could be presented to the public. In 1987, all had interior and exterior lighting designed as permanent, but which was stolen soon after installation. Subsequent festivals utilized temporary cables and lights that were rolled out and stored until the following year.

In 2003, during the collapse of the Hussein regime, the entire electrical system was looted, including wiring in most buildings. Ten generators went missing and the local department of electricity removed two of the three remaining transformers at the Greek Theatre. The entire electrical and air conditioning systems at Saddam Hussein's palace were looted as Iraqi security pulled out.[181]

Polish military forces donated new security systems in 2004-05. These quickly fell into disrepair after their departure and many of the cameras were stolen or broken. Through a special grant provided during the occupation, the Babil PRT replaced the Nebuchadnezzar Museum electrical system in 2010 and installed new air conditioners.

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180 WMF interview with Elham Sabri, SBAH Babil Inspectorate chief electrical engineer, 2012.

181 WMF interview with E. Sabri, 2012.

Potable Water Connections

When Saddam Hussein's palace and the Conference Center were built, the utilities building north of the palace hill included air conditioning and fresh water treatment plants; as per regime policies both had their own self-standing systems. In 2003 the palace's utilities building was stripped, leaving only cooling fans and a maze of pipes too difficult to be carted away. The related pump house on the river west of the palace is empty.

All surrounding communities have municipal fresh water connections except for New Kweiresh, which is serviced by a water pumping station on the Shatt al-Hillah north of Warsaw Gate. The relocation of Kweiresh in the early 1980s to its present location adjacent to Mahawil District put it at the north end of the al-Hillah Municipality and beyond the reach of the city's water network. The noisy pumping and filtration station, operated by diesel generators, also provides a second line to the abandoned tourist village and a third to the core of the site. This is separate from the water lines coming from the city that feed nearby al-Jimjmah and the Babylon Conference Center.

Residences and farms away from the village centers obtain water from wells whose quality has not been tested; many complain of a salty taste.[182] These wells tend to be hand dug anywhere from 5 to 10 meters deep and drilling often brings a burst of pressurized water to the surface, indicative of groundwater force.[183] Households utilize the municipal network for potable water and wells for livestock and irrigation.



Utilities building behind Saddam's palace.

Other facilities at Babylon, such as the Inspectorate's offices, are connected to a municipal pipe that enters near Marduk Gate. A second municipal pipe, under the road to the Shrine of Amran ibn-Ali, connects to the Babylon Conference Center. Whether these lines can support expanded tourism at Babylon has yet to be ascertained.

Sewerage System

The sewerage infrastructure for Babylon is underdeveloped. There are no connections to al-Hillah municipal system and disposal is ad hoc. In surrounding communities, particularly al-Jimjmah and Sinjar inside the site boundaries, sewage is disposed of via individual or group cesspools, an economical solution preferred in rural areas lacking municipal networks.

Private properties use cesspools with septic tank characteristics: underground brick and cement tanks where solid and liquid waste empties into gravel drain fields before entering the soil and likely the upper aquifer. In better-made tanks, one side accepts waste from bathrooms and kitchens, where solids settle resulting in eventual build up and overflow into an adjoining compartment. The second compartment has a porous bottom leeching fluids in a gravel drain field. While most residents contract a private service to regularly pump out and dispose waste at a municipal collection center south of Babylon, others never empty them. Sanitation issues arise

182 WMF interviews with Salah Mahde, 2011-12.

183 WMF interview with Abu Akram, an experienced well digger from al-Jimjmah, 2010.







Bathroom with cesspool and fresh water tank (upper left); displaced family's outhouse, typically with toilet of palm logs set over a pit and an open sewer in Sinjar.

when breaks in the tank allow the contents to leak directly into the ground.[184] Thousands exist in the Babylon area, posing threats to potable water supplies and underground archaeology.

Of greater concern is the poorer form of cesspool typically used by informal or illegal residents within the site boundaries, often internally displaced people. Some have not invested in sewage disposal and, in the worse cases, use only open pits for toilets.

Inside the core of the site, the Babylon Conference Center has a closed septic tank system, regularly pumped out by governorate trucks and hauled to a disposal center.

The facilities under SBAH authority (its inspectorate complex, facilities near the Nebuchadnezzar Museum, and the tourist village) employ similar closed system septic tanks, but none are pumped out. They may either be leaking or not used enough to merit pumping. Like the rainwater drainage cisterns at Ishtar Gate, which were not cleaned since their construction in the 1980s, these cesspools have probably received no maintenance.

The effect of household waste on the archaeological remains has not fully been tested. Yet the combination of thousands of open sewerage systems surely complicates the hydrology problem at Babylon, where groundwater from the Shatt al-Hillah is moving in towards subterranean archaeological remains. In some cases water may pass beneath populated areas before entering the core of the site.[185]

Babylon's existing infrastructure remains a concern. The last serious investment was made in the late 1980s and infrastructure has since suffered looting, vandalism, neglect, and the imposition of a military facility. To date, the SBAH has performed only an assessment of electrical systems that basically addresses restoring the network to the 1980s level of operation.

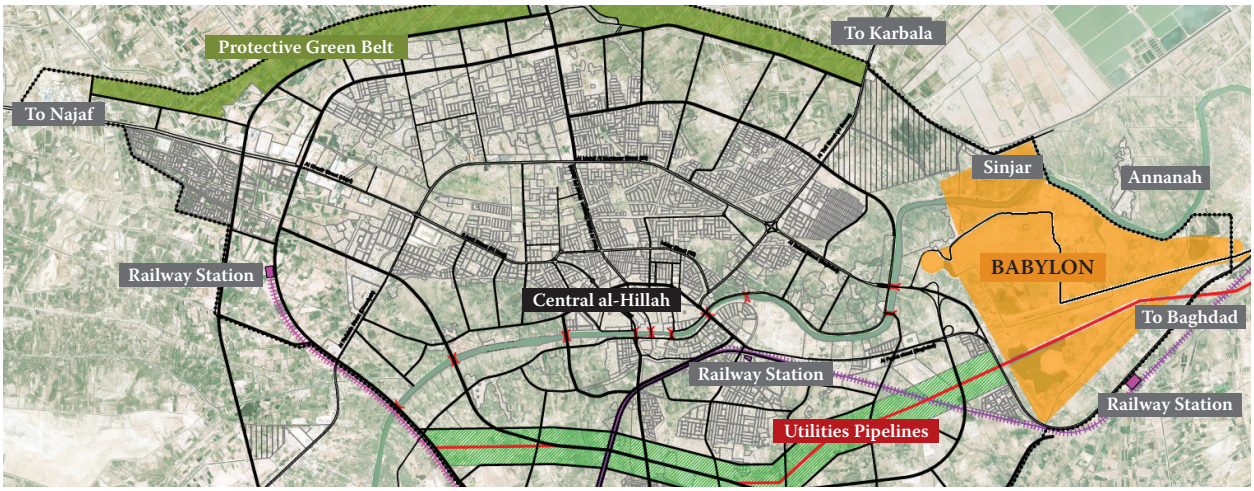
184 In 2012 WMF sponsored a socio-economic survey undertaken by Nature Iraq of residents in of Sinjar, al-Jimjmah, New Kweiresh, and Bernoun. For sewage disposal the results showed no municipal hook ups, but most residents used the municipal fresh water supply.

185 Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report, Annex 1, Geotechnical Investigation of Ancient Babylon Site" (commissioned by WMF in 2012). A technical investigation involved drilling two boreholes. Analyses primarily covered soil properties and did not extend to chemical tests beyond sulphate and chloride measures, which both tested high.

Circulation Network

Babylon's circulation network began as a series of village footpaths some of which were replaced by national and regional roads, others incorporated into Babylon's presentation as an archaeological site. The Revival of Babylon Project in the 1980s increased the site's paved surfaces by at least tenfold. The project introduced some disruptive elements, but it also eliminated a serious threat: a national highway, which was re-routed outside the site boundaries.

The Revival of Babylon Project nonetheless lacked a comprehensive circulation plan; there are many route redundancies, inconveniently placed parking lots, abandoned roads, and some pavements laid over sensitive archaeological areas. The growth of surrounding communities was not considered. The 2007–2008 al-Hillah Master Plan by Dar el-Handassah, which provides projections for urban growth and the road networks required to meet expected demands, contains useful data for the BSMP yet does not totally reflect the impact of ongoing construction in and around the city and on Babylon itself.[186] The Master Plan does however propose a new radial and circulatory road pattern around al-Hillah as well as a green belt along the city outskirts that complements and protects Babylon from traffic.



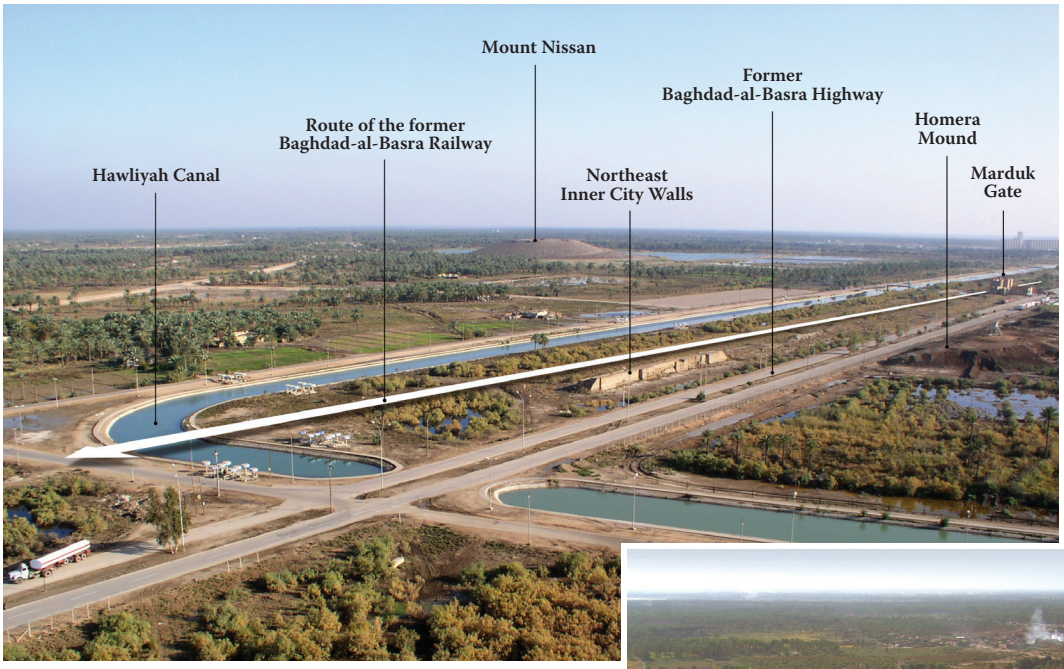
The The 2007-2008 Dar el-Handassah plan proposes an expanded primary road network, seen in bold black, and a new railway station to service Babylon visitors

Road System Until 2004

Until the late 1950s, Babylon's circulation network was informal and unpaved, the main passage being a historic caravan road between Baghdad and al-Basra, which extended roughly along the route of the Shrine of Amran ibn-Ali road.[187] Trails between villages jogged around archaeological features, some continuing on the opposite banks of the Shatt al-Hillah suggesting that ferry travel between villages was common. As irrigation improvements were made, dirt roads were cut on the levees of the Shatt al-Hillah and Babil River.

186 Distributed in two forms: Iraq Ministry of Municipalities and the General Directorate of Urban Planning, "Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah", May 2007 and Dar al-Handasah, "Master Plan of the City of Hilla, Hilla City Development Strategy," July 2007. Although still unofficial, elements of the plan are being implemented by the planning department. The Babil Governorate gave WMF copies of the plan in June, 2009.

187 WMF interview with Ahmed Kamel, 2013.





Baghdad Railway extension line (in white) previously ran parallel to Babylon's inner city walls. Widening the Baghdad-al-Basra Highway (right) involved encroachment of the eastern Summer Palace site.

Before the 1950s, the two-lane gravel Baghdad-al-Basra highway bisected the site, a replacement for the caravan route to the west. By the end of the 1950s, the road was paved and expanded. Between 1958 and 1962 the turn-off for Old Kweiresh that led past the Greek Theatre was straightened and paved up to the new site museum parking lot near the Southern Palace.[188] Named Marduk Street, this was the archaeological site's first purpose-built road.

The Baghdad-al-Basra highway was cut parallel to a meter-gauge railway corridor from the 1920s, an extension of the Baghdad Railway from Berlin and Constantinople begun in 1903 to link Ottoman and German interests to the Persian Gulf and beyond.[189] The original line was built by the British and replaced with a wider standard gauge in the 1960s.[190] Until the 1990s the train stopped for Babylon visitors near the Marduk Gate reconstruction.

In 1981, parts of the Homera Mound and Summer Palace were removed to accommodate improvements to the Baghdad–al-Basra highway. These improvements included adding two paved lanes with associated highway and railway corridors bracketing the northeastern inner city walls, further impacting unexcavated material.

As the Revival of Babylon Project progressed, the SOAH submitted a request to the Iraqi Presidency to shift the Baghdad-al-Basra highway and railway line away from the archaeological remains east of Babylon's outer walls, a massive undertaking. Other bypass roads, routing west around the site and over the Shatt al-Hillah never materialized, but rerouting the highway effectively diverted passing traffic from the site.[191]

188 Parapetti, "Babylon 1978-2008" (2008), 5.
189 McMurray, *Distant Ties: Germany, the Ottoman Empire, and the Construction of the Baghdad Railway*, 2.
190 Hugh Hughes, *Middle East Railways,* (Harrow: The Continental Railway Circle, 1981), 90.
191 Damerji, *Babylon*, (2011), 15-16.

In the 1980s numerous paved roads were built in preparation for the Revival of Babylon Project and its festivals, connecting to the new buildings around the Saddam Hussein palace, the Greek Theatre, and tourist village. Aside from those serving the palace, the new roads and sidewalks provided visitors' access to reconstructed monuments and amenities along a prescribed route. Parking areas were added; the largest for buses is outside of the core area northeast of Marduk Gate.

During Babylon's occupation by Camp Alpha, temporary entry and access points to the central archaeological area were added, including the 'Warsaw Gate' north of the Saddam Hussein palace, which reused existing pavement.[192] Gravel-covered patrol paths were laid in several locations, including the camp's perimeter. When Camp Alpha shut down at the end of 2004, only the street used to access the Warsaw Gate (which pre-dated the camp) was left intact but closed.

Existing Road and Parking Network

The Babylon turn-off of the Baghdad-al-Basra national highway is currently the main entrance to the core archaeological area. Access starts where the Babylon bypass of the national highway veers southeast around the site near the Summer Palace. Entrance to Babylon follows the old highway directly south towards al-Hillah until Marduk Gate, where Marduk Street, a smaller perpendicular road, enters the site core.

The old highway continues south, but is now cut off north of the Hawliyah Canal. The 700 meters of road after the Marduk Street turn-off is abandoned, a two-lane highway leading nowhere. The abandoned highway resumes across the canal, where a traffic roundabout features the statue of Hammurabi. Occasional local traffic flows through the roundabout from a paved road beside the Hawliyah Canal outside of the core of the site. The current Baghdad-al-Basra national highway is 300 meters south, beyond Babylon's outer walls, where the bypass rejoins the abandoned highway.



Baghdad–al-Basra highway intersected by the Hawliyah Canal in the late 1980s, truncating its northern portion. The Hammurabi statue appears in the upper right.

192 Russell, (2005), 100-114.

Although traffic now moves around rather than through Babylon as it did prior to the 1980s, local routes within the site were never adjusted. The circulation pattern between the site's core and current Baghdad-al-Basra highway lacks a system of arterial, distributor, and local access roads. Instead, traffic follows a series of ad-hoc roads between farmed fields that intersect the Baghdad-al-Basra national highway bypass at various points. These allow local traffic to enter the highway, but were not designed to safely access high-speed traffic lanes.

The second entrance to the core is via the Shrine of Amran ibn-Ali road from al-Jimjmah and Road 60. During the Revival of Babylon Project the road was straightened, paved and equipped with underground utility lines. Prior to cutting the road archaeological investigations were undertaken to avoid damaging important remains, yet part of the ancient bridge piers were removed to make way for utilities lines. The Shrine of Amran ibn-Ali road currently serves as the main entrance to the Babylon Conference Center. The Shatt al-Hillah separates the site's west bank from the rest of Babylon's transit system.

West bank development has been somewhat limited because most traffic runs away from the river, but without a bridge, the area is cut off from the archaeological site on the east bank. Consequently the SBAH has no direct access to the western site, and little communication with its inhabitants. This lack of supervision has contributed to the rapid growth of illegal construction around the village of Sinjar within the site boundaries. Plans call for installation of a paved road parallel to the river, from Road 60 up to Annanah, a development that would dramatically increase development inside the proposed boundaries of Babylon.

Public and Private Transportation

As elsewhere in Iraq, inhabitants of the villages surrounding Babylon rely on government-licensed and fixed-route private car and microbus service. Microbus routes originate in al-Hillah at the Naziza Transportation Garage and run to Bernoun, al-Jimjmah, Sinjar, and Annanah villages.[193] Scheduling is based on capacity, meaning vehicles only move when they are full of passengers. In the social survey conducted in support of this project, New Kweiresh residents and those located between the other villages cited poor access to public transport as a major complaint.

In 2003 the rail service from Baghdad that once dropped passengers at Babylon near Marduk Gate was discontinued. Service between Baghdad and al-Hillah remains sporadic. A full railway station for Babylon on the new rail route parallel to the Baghdad-al-Basra highway bypass was proposed in the 2008 al-Hillah Master Plan and would greatly facilitate visitor access.[194]

River Transportation

The Shatt al-Hillah is not currently used for transportation. In late 2003 a private investor proposed a private ferry service linking al-Hillah city with Babylon, specifically to a picnic ground on the west bank opposite the Saddam Hussein palace. Ferry service was inaugurated in 2009, but the plan was not fully realized and soon the boat broke down. Reviving public ferry transport to and around Babylon and nearby communities is an option to be discussed with local investors and tour operators.

193 WMF interview with Salman Ahmed Soulieman, 2012.

194 Iraq Ministry of Municipalities and the General Directorate of Urban Planning, "Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah", May 2007.

Babylon and its Natural Environment

Three specialized studies (geo-hydrological, topographical, and bio-diversity) support the BSMP and furnish data on the natural environment. This section summarizes their results in addition to on-site research performed as part of the BSMP. The complete studies are available in the noted appendices.

Geo-Hydrological Study

(See *BM07, 'Existing: Water Elements and Movement'* map and *Appendix 1 Geo-Hydrological Study*)

A geo-hydrological study of Babylon performed by Consulting Engineering Bureau (CEB) of Baghdad University re-examined previous hydrology studies by the Directorate General of Geological and Mineral Surveys, Ministry of Industry (DGGSMI, 1979) and an al-Furat for Studies and Design of Irrigation Projects study (FCSDIP, 1989). CEB also performed its own research and field-testing towards an updated analysis of the data.

Consulting Engineering Bureau's study offers concepts for de-watering solutions while confirming and refining the results of previous studies. Section III will present several of those de-watering options and recommends engaging further professional assistance from international consultancies such as those who handled ground water issues in Egypt at Karnak, Old Cairo, and Luxor's west bank.



New field testing included borehole sampling.

Babylon is built on a flood plain of Aeolian sediments dating to the Quaternary age 50–250 meters deep.[195] This floodplain forms the central depression between the Arabian Plate and the Turkish and Iranian Plates and the Mesopotamian lowland floor plain covers approximately 54,000 square kilometers. Sediments are sandwiched between a thin clay layer mixed with organic material at the surface and with pre-Quaternary sediments below. Pre-Quaternary sediments (deposited 2.5 million years ago) were found underneath at various depths, indicating irregular surface erosion. The sediments also indicate shifting fluvial deposits and are mainly composed of fine sand layers (0.5–28 meters thick), interspersed with relatively thin, silt layers. The upper layers generally contain brick, pottery fragments, shells and pebbles. Beneath lies a semi-permeable layer of clay and below that a medium-grained sand and gravel layer approximately 15 to 25 meters thick.

Research suggests that Babylon's outer city wall influenced the sedimentation process in its vicinity, acting as an embankment protecting the inner area from floods and causing a difference in upper-layer deposits inside and outside the wall. Sediments outside the wall are composed mainly of sandy deposits, while the area within is composed mainly of silt.[196]

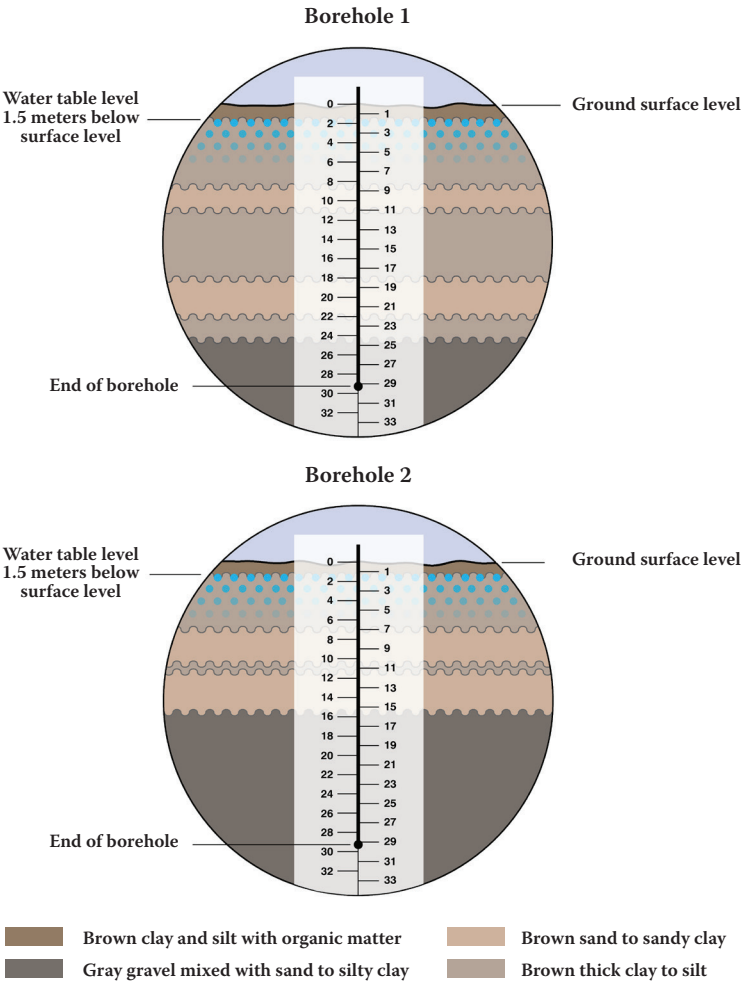
195 Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report," 8. These findings are reiterated in: Olof Pedersén, "Waters at Babylon," from *A History of Water: Water and Urbanization,* Series 3, Vol. 1, eds. Terje Tvedt and Terje Oestigaard, (London: I.B. Taurus & Co Ltd, 2014).

196 Ibid., 10. See DGSSMI, 1979 and FCSDIP, 1989. Core borehole drilling indicated that the depth of the Babylonian outer wall is about 15 meters and the bottom depth of archaeological remnants is nearly 25 meters.

Interestingly, Nebuchadnezzar II planned for marshes around Babylon to serve as defensive elements. Ancient hydrological systems were well-conceived, not least since bulk materials such as barley (stored next to Neo-Babylonian palaces) and cult statues were transported into the city by boat.[197]

Two aquifers lie within the sedimentary strata. The first is unconfined, moving at depths of 4–20 meters below the surface. The second, more confined aquifer, lies beneath the semi-permeable layer of clay.[198] Both move water beneath the site, generally in a southern direction, with the upper aquifer rising in some cases just 0.5 meters from the surface near the river courses, and four meters from the surface in the site's core. Recharge occurs primarily during winter months, when evaporation rates are lower and soil moisture is maintained.[199]

Testing showed transmissivity rates along the upper aquifer to be highest near the Shatt al-Hillah with a significant 320 meters^2 of water moving underground past a given square meter of earth daily.[200] Measurements made near the Babil River showed similar transmissivity rates. In contrast, underground water movement is substantially lower toward the middle of the archaeological zone (roughly the site core).



Stratigraphic diagram of borehole testing results.

In 1988, levees built between the Hindiya Barrage and the Dora Regulator south of al-Hillah allowed the Shatt al-Hillah to rise above its historic levels, raising Babylon's water table.[201] Water surges out of the Shatt al-Hillah and Babel River, rather than draining into them.

Rising groundwater and the resulting saline residue are two of the main, ongoing causes of damage to archaeological remains above and below ground at Babylon while also preventing further excavations. As the groundwater discharge moves upwards (because of evaporation rates many times higher than rainfall recharge) upper soil layers accumulate salts. The percentage of soluble salts varies from fifteen percent in the top one-half meter to 0.2 percent in the second meter of soil.[202] This is visible in the winter months as a white coating on the ground surface.

Despite minimal rainfall, now as in the past, occasional rainstorms pour large quantities of water on the site. Drainage measures implemented during the 1970s and 1980s were ill conceived and unsuccessful. Sloping surfaces often move water towards rather than away from monuments. Inappropriate drain piping, poor guttering, and leaky cisterns have hastened the decay of these structures.

197 Ibid., 9-10.
198 Ibid., 19, and DGSSMI, 1979.
199 Ibid., 12.
200 Ibid., 21-22.
201 WMF interview with Zaki Abbas, 2012. Now in his early seventies, Mr. Abbas was an irrigation engineer for the Ministry of Irrigation who on the Hindiya Barrage and dams near al-Hillah, specifically the Dora Regulator.
202 Consulting Engineering Bureau, "Hydrological Study of Ancient Babylon Site, Final Report," 23.

Topographic Study

(See *Appendix 3*, study conducted by CRAST)

The Centro Ricerche Archeologiche e Scavi di'Torino (CRAST) has been studying Babylon since the 1970s and enlarged its ongoing research on the Shatt al-Hillah for the purposes of the BSMP. Combining archival information and satellite imagery, CRAST maps historic shifts in the river's course and tracks how Babylon's urban fabric evolved in response. This work deepens our understanding of Babylon's current topography while illustrating the connection between the natural environment and the city's development.

The Shatt al-Hillah was the major branch of the Euphrates flowing through Babylon in antiquity, but the Euphrates followed multiple channels. Tracing settlement patterns of different periods reveals changes in the rivers' courses. Neat lines of settlements seen today as tells, represent the banks of now-vanished watercourses. Kish and Sippar, Babylon's predecessors as pre-eminent settlements, lie on such channels. Substantial changes in the river's course likewise occurred during the millennia of Babylon's occupation, as reflected in the changing orientation of street-plans within the city.[203] One major alteration in the river's course dates to the Achaemenid period, when the river took a sharp detour east at the northern edge of the inner city.[204]



The Shatt al-Hillah at Babylon before the river level was raised, 1911.

By the early twentieth century when Koldewey excavated at Babylon, the Shatt al-Hillah was greatly reduced. Photographs from those years suggest a seasonally fluctuating flow in a riverbed somewhat wider than today's. In 1911, when the excavations were still taking place, work began on barrages at Saddat al-Hindiya, which had a significant effect on watercourses downstream.

The Hindiya Barrage's six large gates control water flowing down the Hindiya branch and the Hillah Barrage's eight smaller gates control the Shatt al-Hillah branch. The two send water down canals to farmlands around the cities of Karbala, Saddat al-Hindiya, al-Hillah, and al-Kifel. The level of the Shatt al-Hillah was raised and provided better irrigation water supplies. This has since encouraged farmers to return to areas that appear to have been vacant at the time of Koldewey's excavations, the latest example of the river's impact on settlement at Babylon.[205]

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203 Carlo Lippolis et al., "Babylon's urban layout and territory from above," *Mesopotamia* 46 (2011), 1-8, pls. I-IV. The plates show traces of ancient watercourses and street plans recovered through remote sensing and integrated with existing archaeological data. The varied paleoriver traces demonstrate the instability of the watercourse over time.

204 Summarized in G. Bergamini, "La mission italienne, 1974-1989," B. André-Salvini ed. , *Babylone* (Paris: Musée du Louvre Éditions/Hazan, 2008), 529-531. For a more detailed study of watercourses and levels in the Neo-Babylonian period see G. Bergamini, 'Levels of Babylon reconsidered,' *Mesopotamia* 12 (1977), 111-152.

205 WMF interview with Zaki Abbas, 2012. Mr. Abbas noted that people left the area when irrigation water diminished. Designed by William Willcocks, the original Barrage built 1911-1913 was replaced a few kilometers upstream (1984 -1989).



Date palm grove near Mount Nissan provides income for residents and habitats for flora and fauna.

Bio-Diversity Study

(See *BM06, 'Existing: Natural Resources'* map and *Appendix 4 study* conducted by Nature Iraq)

In 2011, WMF commissioned Nature Iraq, a Suleimania-based non-profit environmental organization, to perform a biodiversity study at Babylon. Nature Iraq's report is derived from a baseline survey made at thirteen site locations (identified as BAB 1- BAB 13) where flora and fauna were counted and threats assessed.

Political instability has taken its toll on the environment in recent years. Eco-systems throughout most of the country have suffered from a lack of supervision and regulation enforcement. Babylon is no exception; flora or fauna are threatened by residential construction on agricultural properties, intensified agriculture, overgrazing, road and vehicle disturbances, air pollution, unregulated hunting/fishing practices (including the use of dynamite) on the Shatt al-Hillah and artificial water bodies, and garbage dumping by government and private entities.

Although not an exhaustive scientific evaluation, the survey provides a snapshot of the landscape's environmental health, confirming Babylon as an important area for observing wildlife for scientific, educational, and eco-tourism purposes.[206] The absence of large numbers of visitors and routine maintenance of Babylon since 2005 has allowed flora and fauna to repopulate, and in some cases flourish at, the archaeological site.

The study, combined with WMF research, identifies assets for preservation and inclusion in Babylon's re-defined cultural landscape that will inform the development of proposals for conservation and restoration. Identifying annual animal migration patterns and seasonal growth cycles could enhance the present study's value.

Flora

Plants native to this arid eco-system, mainly desert shrubs, have elaborate structural and physiological modifications including deep roots that reduce water loss. The most successful can grow in salty soil with groundwater depth ranging from 0.6 meters to 2.0 meters and in fact provide an indicator of groundwater proximity to the surface. Babylon also comprises several

206 Nature Iraq, "Biodiversity Baseline Study," 5.

aquatic habitats with reed and cattail beds and rooted submerged vegetation. Based on satellite imagery and local accounts, these have matured and expanded in the absence of tourism and since the end of Babylon's military occupation in 2004.

Nature Iraq identified 42 plant species from 21 families, most of them common in Iraq. [207] Introduced species, mainly agricultural, have dramatically transformed the site, particularly date palm groves massed near water sources and irrigation systems. The densest are on the banks of the Shatt-al-Hillah, particularly the west side. Seen from the east bank the canopy of green crowns provides a backdrop to the site core. Palm groves support biodiversity by providing habitats for fauna and flora. In recent years the groves have been reduced due to archaeological regulations restricting irrigation and new plantings combined with accelerated construction activity.

Fauna

Animals inhabit Babylon's wetlands, arid zones, and agricultural areas. The survey counted 21 bird species and 11 species of mammal including fox, jackal, mongoose, and wild boar. Aquatic species are abundant, including fish, turtles, and 38 water-related bird species.[208] Most of the fauna is common throughout Iraq.

The Nature Iraq study identified one exceptional natural area around the artificial Lake Saddam (BAB 1).[209] Thanks to its relative isolation and proximity to the Shatt al-Hillah, tall reed beds have grown since 2005 providing shelter for several species of migrating herons, cormorant, and other waterfowl including two rare, internationally threatened species of duck. The lake likewise offers year-round habitation for amphibians, fish, and mammals.

The Furat fish farms, two kilometers west of Babylon, (BAB 12) consist of 13 large, artificial lakes providing a habitat for thousands of gulls, teal, herons, grebes, storks, and egret. Although not part of Babylon, waterfowl from the farms interact with water bodies and open areas within the site. [210]



Nature Iraq ornithologists monitoring bird life at Lake Saddam.

207 Ibid., 7.
208 Ibid. Aquatic bird populations increase during the winter migration period.
209 Ibid., 19-23.
210 Ibid., 55-58.

Stakeholders: an Initial Assessment

Ministry of Tourism and Antiquities (MTA)

Since early 2012, the newly mandated MTA oversees the SBAH (previously answerable to the Ministry of Culture) and all affairs involving antiquities and tourism.[211] Excavation permits, permission to conduct site work and research must be obtained via the SBAH from the MTA. Given the ministry's dual objectives, the tourism and antiquities sectors will have separate administrators working under the minister.

The merging of antiquities and tourism under a single authority can effect Babylon's future development in positive ways. Centralized planning, combining cultural heritage management with commercial activities at the site could be facilitated. The MTA has expressed interest in establishing hotels and tourism related services at and near Babylon. Introducing development without compromising the site's integrity will be a major concern for Babylon's management as well as UNESCO's decision regarding a World Heritage nomination.

Iraqi State Board of Antiquities and Heritage (SBAH)

The SBAH's values and vision for Babylon were developed and formulated over a four-year period of meetings and on-site workshops organized by WMF, including mapping and significance-definition sessions held in Egypt, Turkey, Lebanon, and Northern Iraq. The SBAH largely supports the idea of a site management plan both for its inherent value and the role it can play in UNESCO's nomination of Babylon as a World Heritage site. Yet organizational weaknesses, some owing to Iraq's political environment, have slowed progress.



SBAH staff from Baghdad and Babylon reviewing Ishtar Gate laser scanning software with WMF representatives.

In 2001 the SBAH was formed from the vestiges of the General Directorate of Antiquities and the SOAH.[212] Today, the SBAH employs approximately 2,500 people and is organized into seven directorates each overseen by director generals with representatives of the Ministry of Tourism and Antiquities. The SBAH answers directly to the Minister of Tourism and Antiquities. The Director General of Investigations and Excavations is in charge of 15 provincial inspectorates (three more are under the General Directorate of Antiquities of the semi-autonomous Kurdish area).

211 In 2005 a memo of understanding was signed between the Ministry of Culture and the State Ministry of Tourism and Antiquities granting the latter authority over archaeology through a budget provided by the Ministry of Culture. Several years later the Ministry of Culture redefined the partnership, making the SMTA only an advisor. This resulted in a contentious relationship and confusion for both SBAH employees and outside interests until the State Ministry was elevated to a full-fledged ministry by a cabinetry directive in 2012 yet the process remains unofficial until national parliamentary approval.

212 The General Directorate of Antiquities operated until 1977; the State Organization for Antiquities and Heritage (SOAH) from 1977 to 1980, and the General Directorate again from 1980 to 2001. The organization's name change principally reflected shifts in budget allotments within the Iraqi Government.

The Babylon Cultural Landscape and Archaeological City is within the mandate of the Babil Inspectorate, headed by an Inspector and a Deputy Inspector. The inspectorate has five departmental units: administration, engineering, archaeology, heritage, and museums. The last unit includes Babylon's two site museums, which are under the Babylon Museums Manager and are jointly overseen by the Baghdad-based Director of Museums and Director General of Excavations and Investigations.

Beyond its involvement in compiling the site management plan, the SBAH will be responsible for implementation, which will demand a dedicated staff comprising personnel with new job descriptions, additional skill sets and expertise. The Babil Inspector and/or Deputy Inspector will be unable to devote the necessary time and attention to the range of activities required to fulfil the site's potential as a cultural destination, pilgrimage site, and educational resource.

Compiling the BSMP has shed light on the demands of such large-scale projects and the shortcomings the SBAH must remedy in order to successfully implement them. While the SBAH Inspectorate employs seasoned archaeologists, it lacks staff with other essential skills. No one is experienced in tourist site management of any magnitude, in site interpretation, conservation and documentation as currently practiced, or in commercial property management, largely because there has been little call for these activities.

The future of Babylon will rely on the SBAH's ability to attract and nurture talented professionals, to offer opportunities to build their capacity and financial incentives to become long-term employees. Until recently the SBAH counted few young people among its ranks, but recently has made efforts to expand the ranks with young recruits, expanding their number of employees. Still, the age of employees remains a weakness that will influence the organization's future and the viability of this site management plan. Improved staffing, operational, and administrative procedures accompanied by cooperation with local government authorities are the greatest challenges the SBAH faces. The SBAH is Babylon's principle stakeholder as well as the organization charged with safeguarding Iraq's national heritage.

The SBAH Future of Babylon Committee



Babylon Committee members discuss proposed changes in the site's administration.

The Committee was formed by the SBAH in response to WMF's request for a contact group to assist in assembling the BSMP and overseeing WMF-driven conservation efforts. The committee's five members, appointed by the former SBAH chairman, are management figures from both the local inspectorate level and Baghdad headquarters with specialties in archaeology, conservation, engineering, and architecture.

The Committee's initial purpose was to partner with WMF in assembling this plan primarily by assigning members to head sub-committees tasked with documentation, archaeology, conservation, government, and public outreach. Attention also focused on building the committee's capacity to supervise the BSMP's implementation including the establishment of a new administrative system. A dedicated work group that comprehends the site management plan's values and methodology and that governs its implementation is essential.

Babil Governorate

Iraq 's 18 provinces (three in the semi-autonomous Kurdish area) each have a local government. Babylon is the mandate of the Babil Governorate, headquartered in al-Hillah, and steered by the publicly-elected Provincial Council (PC). Council members elect a chairman from amongst their rank and a governor who serves at the council's discretion. Beneath this upper level of management lie four district and several sub-district governments each with their associated councils and appointed leaders.

The PC includes several sub-committees representing sectors important to local society; the PC's Culture and Tourism Committee is a primary contact for SBAH officials at Babylon. The Babil Governorate sees Babylon as a priority for growing the province's tourism sector, an attractive means of achieving greater economic independence from the central government's financial allocations, which are derived mostly from oil revenues.

Since Saddam Hussein's downfall, the Babil Governorate and SBAH have contested authority at Babylon. In the leadership vacuum left by the regime's collapse and the closing of Camp Alpha, the Governorate took control of the palace of Saddam Hussein, the Babylon Conference Center and the surrounding landscape, all facilities holding potential revenue streams. The SBAH's legitimate claim that this was illegal was largely ignored. The SBAH consequently sued two Babil Governors, demanding full control over the land and facilities within the site boundaries.

Babil Governorate officials, like other Iraqi provincial authorities, contend that legislation entitled 'the Governorates Not Incorporated Into a Region Law Number 21' of 2008 and the 2005 Iraqi Constitution, support their authority over all provincial affairs, including archaeology. The unresolved matter is elaborated later in this section.

The Future of Babylon project has kept an open line of communication with local authorities that are taking a more active and supportive interest in Babylon. The Babil Governor and PC membership have changed in the last two years. Relations with the current governor are an improvement over past years, and the SBAH has hosted several site visits by PC members.

Shi'a Endowment

Historically, the Iraq Ministry for Religious Affairs' (Ministry of Waqf) role was to encourage the populace to support leaders, religious institutions, and processes that reinforce tolerant religious practices. The ministry's ultimate intention was to foster moderate beliefs that conformed to state-endorsed policies. The ministry also served as the country's largest landlord through generations of property endowments donated by the faithful.

Instead of functioning as a single governmental agency, today's Waqf consists of three separate religious endowments. The Shia, originally the largest, resided under the former Ministry for Religious Affairs until 2003 and is now governed directly by the Prime Minister's Office. The Shi'a endowment controls pilgrimage activity and shrines including that of Amran ibn-Ali at Babylon through its regional department. A second independent division of the former Ministry of Waqf handles matters and properties connected to Sunni Muslims, and a third covers the affairs of the three percent of the population that are Christian, Yezidis, Baha'is and other religions.[213]

Since 2003, the Shi'a Endowment has developed visitor facilities at the Shrine of Amran ibn-Ali as part of a program to increase pilgrimages. A number of new structures were built without consultation or discussion with the SBAH Babil Inspectorate.[214] Dialogue between the two organizations remains limited.

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213 United States Department of State, *Annual Report on International Religious Freedom, 2009* (Washington, D.C.: United States Department of State, 2009), Iraq section, 3.

214 WMF interview with Sheikh Salah Ali, a caretaker at the Shrine of Amran ibn-Ali, 2012.

Local Communities and Site Residents

Compiling the BSMP involved one-to-one communication with local villagers, meetings arranged primarily through SBAH Babylon employees who live in the area. A series of informal conversations opened doors to local networks, allowing well-attended community gatherings to take place, with clan sheikhs and farmers owning property inside the site as the main participants. Dialogue mostly concerns land rights, employment opportunities, and the ways that Babylon's potential future as a major tourist destination and World Heritage site could benefit local communities. These gatherings marked the first time local residents were engaged in a dialogue with Babylon's authorities to build a cooperative relationship.

Tribal traditions form the social and cultural backbone of Iraqi society. Outside of larger cities, where their influence is somewhat limited, these traditions remain integral to the lives of Iraqis. At Babylon the system of binding relations is based on a mixture of collective ancestry, geographic origin, and social conduct. Assembling the BSMP required a basic understanding of the tribal networks active in the communities. Meetings were held with several sheikhs at Babylon and sometimes in their *madiafa* to define means of improving relations between the SBAH and the communities.

The Future of Babylon project commissioned Nature Iraq to perform a socio-economic survey, facilitated by the network established at community gatherings. People living and farming within the site boundary told Nature Iraq that the SBAH rarely communicated except to accuse them of breaking rules. They were familiar and unhappy with the SBAH restrictions accompanying private land use within and adjacent to Babylon. These include construction of a single, as opposed to multiple, storey dwellings, restrictions on well-digging and the prohibition of fish farms, canal dredging, and replacement of dead date palms.



Babylon farmers are concerned about water usage restrictions and groundwater contamination.

They expressed confusion regarding the site boundary's location and allowable practices in the buffer zone, and were concerned that privately-owned land may be lost. Villagers with extended families holding farmland inside the site consider it of the utmost value as both investment and income source. They resented the forced evictions and low compensation suffered under Saddam Hussein. A legacy of distrust has hampered attempts by the SBAH or local government to buy back land inside the boundaries. Opening the lines of communication was a first step towards building the rapport necessary for finding cooperative solutions.

Visitors

Visitors have always played a role in Babylon and will continue to do so, as customers with expectations that influence quality standards and competitive services. Moreover, visitors' interaction with and appreciation for the site fulfills its purpose of embodying and conveying the universal value of cultural heritage.

Today visitors to Babylon are predominately Iraqis from the south-central region, over 13,000 Iraqis visited in 2012. Numbers increase during post-exam school holidays, when student groups

traditionally spend a day at Babylon, strolling along the entry road, visiting the former palace of Saddam Hussein, and attending a catered party at the Babylon Restaurant in the Conference Center.

The entry fee system for the archaeological area ranges from 250 Iraqi dinars (IQD) for primary students to 1500IQD for adults.[215] A fixed 20 United States Dollars (USD) entry fee is charged for foreigners, a disproportionate amount given the site provides no services, facilities or interpretation. All revenue from admission fees go to the Ministry of Finance who distributes budget allocations for all ministries, a system that hinders partnership opportunities for others to share Babylon's economic potential.



Given security concerns, foreign tour groups are rare.

Millions of religious pilgrims, mainly local and Iranian, travel through this part of Iraq each year, visiting the Shi'a shrines of the Tomb of Ali ibn-Abi Talib, the First Shi'a Imam in Najaf and the tombs of his sons Hussein ibn-Ali and al-Abbas ibn-Ali in Karbala. The Hillah area contains a number of secondary sites and some pilgrims find their way to the Shrine of Amran ibn-Ali at Babylon. The Shi'a endowment's pilgrimage association promotes the shrine and visitor numbers are increasing. The Babil Governorate and SBAH has not yet attempted to capitalize on these visits but several villagers have erected makeshift souvenir stands like those found at other shrines.



Iraqi tourists, Babylon's most frequent visitors, at Ishtar Gate.

Security concerns account for the low visitor counts at Babylon (estimated 13,000 visitors in 2012) and many Iraqis assume the site is still closed to the public. International tourism at Babylon numbered less than 300 visitors in 2012. These tended to be Baghdad-based diplomatic missions, and more recently, occasional adventure tours arranged by a French company Terre Entière and Hinterland Travel out of London.

Many consider increased domestic and international tourism as Babylon's rightful purpose. Tourism is perceived as the source of revenue that will improve social and economic conditions within al-Hillah and throughout Babil Province. Yet tourism will only increase when security has improved. Mass international tourism, a cash cow in the eyes of many speculators, remains a distant and uncertain socio-economic benefit.

Tourism Business Owners

Al-Hillah's tourism sector has long handled sightseeing at Babylon, and was well placed to capitalize on the surge of visitors accompanying the Revival of Babylon festivals (late 1980s-early 1990s). Many local agencies providing tourism-related services grew. The tourism economy waned during the First Gulf War, was damaged by sanctions and finally collapsed with the 2003 Coalition Forces invasion of Iraq and subsequent downfall of the Saddam Hussein regime.

215 One thousand three hundred IQD equaled approximately 1USD in 2014.

Strategically located between Karbala and Najaf, al-Hillah's business community is again actively involved in the tourism sector. The current clientele is a growing number of Iranian Shi'a pilgrims who were previously restricted but can now visit the region's important shrines. Businesses primarily focus on travel, transport, and food services with accommodations concentrated around the Tomb of Ali ibn-Abi Talib in Najaf and the tombs of his sons Hussein ibn-Ali and al-Abbas ibn-Ali in Karbala. Other visitors to the area tend to be on business trips from other parts of the region or Iraq.

Tourism service providers are generally open-minded entrepreneurs who wish to see Babylon rejuvenated and international visitors return. At meetings held during the assembly of the BSMP, they formulated the challenges to attracting tourists to Babylon, including regional security, hard-to-obtain tourist visas and inadequate accommodation facilities. A limited number of accommodations are currently available in al-Hillah, driving up room rates and fostering a tourism environment where value is low compared to price.[216]

Local Youth

Local youth are committed to their community and have enthusiastically expressed their wish to participate in Babylon's preservation and future. The Youth Dream Team, a group of civic volunteers, undertook a trash clean up along the Processional Way, set up plastic trash bins in the Nebuchadnezzar Museum courtyard, and erected signs touting their work. Youth from al-Hillah have organized similar groups that despite good intentions are often short-lived. Youth groups cannot collect or disperse funds unless they are registered NGOs since registering is a complicated and expensive process) they end up being co-opted by existing NGOs and their political agendas.

Security Personnel

Site security guards depend on Babylon for their livelihood and maintain a constant presence on site. In the past, the antiquities police were SBAH employees, armed and in uniform patrolling SBAH-registered sites. Since 2003 SBAH-employed guards no longer carry weapons. Their function is to provide eyes for the Babil Inspectorate by patrolling the archaeological site and liaison to the Iraqi Police, but usually they congregate at the courtyard entrance to the Nebuchadnezzar Museum waiting for visitors.

The Ministry of Interior has a division of Governorate Iraqi Police who secure the site, reporting to a district command based at Babylon. District command, in turn, answers to a Governorate-level officer in al-Hillah. Iraqi police operate checkpoints at two points of the archaeological core and the main entry gate where fees are collected. National Iraqi Police officers, more of a paramilitary wing of the ministry, man vehicular checkpoints in the area and sometimes assist the Governorate police at Babylon's entrances too.

With the 2012 theft of artefacts from the Nebuchadnezzar Museum storage, Governorate Iraqi Police increased their presence inside the site.[217] The former souvenir shop in the museum courtyard was converted to a police post. Governorate Iraqi Police stationed around the perimeter at positions that are continuously manned, rarely leave their posts on patrol.

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216 Following Saddam Hussein's downfall, the US State Department used the Babylon Hotel, located one kilometer from the site, as a regional embassy office adding fortifications and other changes that altered its capacity. In late 2009 the building was turned over to the Iraqi Ministry of Interior who maintains security operations there subject to its redevelopment for tourism. The estimate to upgrade the facilities to international standards is reportedly over USD10 million. The limited tourist-grade accommodations are generally overpriced, such as the Babylon Conference Center on site and the Asaad Babil and al-Hayat hotels located in al-Hillah.

217 In August 2013 the Nebuchadnezzar Museum was broken into. A collection of glazed brick fragments from Ishtar Gate found during a Future of Babylon project clean up was stolen. The Police investigation was unable to apprehend the thieves or recover the objects.

The Ministry of Interior provides limited special training for the police corp. Several members participated in courses for antiquities police in Amman, Jordan sponsored by the Italian Cultural Heritage Protection Squad (Comando Carabinieri per la Tutela del Patrimonio Culturale). The Carabinieri also donated equipment, including portable housing units (CHUs) at several Babylon stations. The Iraqi Police recently renovated the utilities building of the former palace of Saddam Hussein as their district headquarters.

UNESCO

The United Nation's Educational, Scientific and Cultural Organization (UNESCO) promotes intercultural dialogue and the cooperative protection of cultural and natural heritage by recognizing resources of universal value under their World Heritage program, administered by the World Heritage Center. The UNESCO General Assembly regularly elects 21 state parties who operate as the World Heritage Committee. Iraq had representation on this committee between 2010 and 2013.

The UNESCO Office for Iraq was founded in 2003 in Amman, Jordan with staff positioned in both Baghdad and Erbil. UNESCO's Iraq office oversees the coordination and convening of the International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq (ICC) and the former sub-committee (2005-2010) concerning Babylon.

UNESCO has taken an interest in Babylon since it was admitted to the tentative WHS list. In 1982 when the SOAH first presented Babylon for World Heritage status consideration, a decision was deferred. Two subsequent requests (1985 and 1991) failed mainly due to the extensive alterations of the Revival of Babylon project and the absence of a sound site management strategy. Babylon remains on the tentative list and the BSMP will advance its cause considerably. If the MTA and SBAH implement the preliminary requirements outlined in this draft before re-initiating their application, the chances of a successful nomination might significantly increase.

World Heritage Center

Associated with UNESCO, the World Heritage Center oversees the inscription of sites to the World Heritage List. The World Heritage Committee operates under the Center and makes the final determination on World Heritage listings. Twenty-one committee members vote on nominations recommended for review by the World Heritage Center. Center staff is responsible for the review, processing, and recommendation of all applications.

ICOMOS

The International Council on Monuments and Sites (ICOMOS) is a non-governmental organization comprised of 95 national committees dedicated to the conservation and preservation of global heritage. The council's principles are found in the 1964 International Charter on the Conservation and Restoration of Monuments and Sites (the Venice Charter).

ICOMOS offers UNESCO advice on cultural heritage and often monitors the protection of listed world heritage sites. They also maintain documentation on all world heritage sites and oversee associated charters. At present, Iraq's national committee has been disbanded but some SBAH staff members wish to see it revived.

ICCROM

The International Center for the Preservation and Restoration of Cultural Property in Rome, Italy is an intergovernmental agency founded by UNESCO dedicated to the conservation of cultural heritage. Training is an important part of the ICCROM mission and the ATHAR (Architectural-Archaeological Tangible Heritage of the Arab Region) program within ICCROM specifically focuses on cultural heritage sites in the Arab region. Members from the SBAH and Waqf participated in general training and specific training regarding sites in Iraq through ATHAR.



SBAH engineer and WMF representative set crack monitors at Ishtar Gate.

World Monuments Fund (WMF)

A private, non-profit organization founded in 1965, the WMF has worked in over 100 countries to preserve global heritage. Since 2008, WMF has managed the Future of Babylon project with the SBAH. The collaboration is aimed at developing a site management plan for Babylon while stabilizing and preventively preserving priority sites within its archaeological core.

Beginning in June 2009, WMF personnel have visited Babylon and Baghdad regularly, conducting twenty, two to three week-long missions to date.[218] In addition to the site management plan, works in progress include conservation on key structures and related site clean-ups, condition assessments and documentation for excavated areas of the site. The process of compiling the BSMP has meanwhile provided a realistic assessment, for both WMF and its SBAH partners of how Babylon can be managed, and the expertise, effort, and cooperation required to do so successfully.

United States of America Department of State, Bureau of Educational and Cultural Affairs, Cultural Heritage Center

All US foreign affairs functions administered through the Department of State related to the protection and preservation of cultural heritage are overseen by the Center, which provides support for the Future of Babylon project under the Iraq Cultural Heritage Initiative. The Center manages tasks related to the *1970 Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property* and oversees the Ambassador's Fund for Cultural Preservation which is currently supporting stabilization and conservation work at Babylon.

United States of America Embassy in Baghdad

The Embassy worked closely with the SBAH to manage the Iraq Cultural Heritage Project that was responsible for improvements to the Iraq National Museum in Baghdad, capacity building of SBAH staff via targeted training, and the establishment of an internationally recognized conservation center in Erbil, Northern Iraq. Embassy staff provided invaluable logistical support that helped get the Future of Babylon project off the ground. Its extension office within the former Babil PRT also assisted the project in rehabilitating the Nebuchadnezzar Museum.

218 Detailed mission reports from Community Consortium have been duly filed with WMF.

Vorderasiatisches Museum (VAM), Berlin

The museum was founded in 1899 as Vorderasiatische Abteilung (of the Royal Museums later State Museums) from 1953 called Vorderasiatisches Museum. The Directorate-General of the Royal Museums was together with DOG responsible for Koldewey's excavation in Babylon. VAM, together with the museums in Istanbul and Baghdad, has the largest collection of properly excavated artifacts from Babylon.[219]

Deutsche Orient-Gesellschaft (DOG)

Founded in 1898 in Berlin, the Deutsche Orient-Gesellschaft was created with the purpose of promoting research in the field of oriental archaeology and bringing it to a wider audience.[220] Robert Koldewey, as part of the Deutsche Orient-Gesellschaft and employed by the Staatliche Museen zu Berlin, carried out the most extensive excavations at Babylon during the late nineteenth and early twentieth centuries. These excavation archives, although under the authority of the DOG, are housed at the Zentralarchiv der Staatliche Museen zu Berlin.

Deutsches Archaologisches Institut (DAI) or German Archaeological Institute

A federal agency within the Ministry of Foreign Affairs, the Deutsches Archaologisches Institut (DAI) primarily performs international archaeological research. The German Foreign Office limits the DAI's present presence to northern Iraq. It nonetheless played an important role at Babylon, with excavations in Babylon in the 1960s and with DAI staff members serving on various UNESCO organized oversight committees, hosting conferences, conducting training and capacity building programs for SBAH scholars, including some from Babylon.[221]

Centro Ricerche Archeologiche e Scavi di Torino (CRAST)

Founded in 1963, the Torino-based Centro Ricerche Archeologiche e Scavi di Torino (CRAST) is dedicated to archaeological research, the managing and preservation of cultural heritage, and the presentation of associated research to the public. On behalf of the Italian Ministry of Foreign Affairs, it initiates cooperation agreements involving cultural projects in Mediterranean, Near and Middle East countries including Iraq.

CRAST's involvement at Babylon began in 1974 (under the Italian-Iraqi Institute of Archaeological Sciences and the Iraqi Center for the Restoration of Monuments) when a new topographic survey of the archaeological area and preliminary studies of the paleo-hydrology of ancient Babylon began. The recently updated results from this study have greatly informed this site management plan. Between 1987 and 1989 CRAST conducted excavations at the south side of the Inner City Walls (city quarter of Shu-Anna).[222]

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219 N. Crüsemann, *Vom Zweistromland zum Kupfergraben, Vorgeschichte und Entstehungsjahre (1899-1918) der Vorderasiatischen Abteilung der Berliner Museen vor fach- und kulturpolitischen Hintergründen*, Jahrbuch der Berliner Museen 42, Beiheft (Berlin: Gebr. Mann, 2001).

220 For an early history of the DAI and DOG see Suzanne L. Marchland, *Down from Olympus: Archaeology and Philhellenism in Germany 1750-1970* (Princeton University Press, 1996).

221 Margarete van Ess, Scientific Director of DAI's Orient Department, was co-chair of the ICC sub-committee on Babylon and co-editor of *Final Report on Damage Assessment in Babylon* (UNESCO, 2009).

222 G. Bergamini, Excavations in Shu-Anna, Babylon 1987, *Mesopotamia* XXIII (1988), pp. 5-17; IDEM, Preliminary report on the 1988-89 operations at Babylon, Shu-Anna, *Mesopotamia* XXV (1990), pp. 5-12, (Firenze, Le Lettere).

British Museum

The British Museum holds some of the largest and most important collections of cuneiform texts from Babylonia and Babylon. Former museum staff member, John Curtis, led an international effort to assess the damage and losses resulting from the looting of the national museum in Baghdad and occupation of Babylon. This evaluation led to the 2009 *Final Report on Damage Assessment in Babylon*, published by UNESCO and co-authored by Dr. Curtis and Dr. Margarete van Ess of the DAI.

In 2008–2009 the British Museum mounted the exhibition "Babylon: Myth and Reality," which situated Babylon in its historical and contemporary context, juxtaposing the archaeological remains of the Neo-Babylonian period with examples of the city's later representation in art and culture. Michael Seymour, co-author of the exhibition catalogue, now with the Metropolitan Museum of Art in New York, contributed to the BSMP.

Babylon Archaeological Project (BAP) and Polish Military Contingent in Iraq

The Babylon Archaeological Project, begun in October 2003 by the Coalition Provisional Authority (CPA), South-Central Region, was established as a joint Polish-Iraqi initiative. Overseen by Dr. Rafal Kolinski of Warsaw University, BAP was responsible for monitoring and recording the areas occupied by Coalition Forces within Babylon.[223]

The Polish Military Contingent in Iraq was directly responsible for substantial repair work to modern facilities within the archaeological site that endured vandalism and theft prior to the arrival of Coalition Forces.[224] Over 600,000USD was spent in Babil Province, the majority at Babylon through the Commander's Emergency Response Program of the CPA. The projects implemented were primarily the rehabilitation of modern facilities, including overhaul of the Nebuchadnezzar and Hammurabi museum buildings, installation of security systems covering archaeological areas, visitor improvements and restoration work at the Shrine of Amran ibn-Ali. Iraqi police stationed at the site were also provided new equipment and training under a separate program. The CPA, under Polish forces, officially turned the site back over to the SBAH in January 2005.[225]

223 International Audit Commission, "Report on Babylon Current Condition", (December 2004).

224 Tomasz Burda, "Specification of Projects Realized by Specialists in Archaeology and Protection of Cultural Heritage in Polish Military Contingent in Iraq", (February 2005).

225 Rafal Kolinski, "10 Weeks in Babylon", British School of Archaeology in Iraq Newsletter, 13 (May 2004).

Legal Protection Framework

(See *Appendix 5 for study conducted by LCCHP*)

Babylon's legal protection framework is complicated and ever changing as Iraq continues to revise legislation supporting a new government. WMF commissioned the Lawyer's Committee for Cultural Heritage Preservation (LCCHP) to undertake a study of Iraqi laws governing cultural heritage. The following text summarizes their 2012 findings as well as SBAH decisions regarding the proposed boundary and buffer zones for Babylon.

Iraqi Federal Laws

(See *BM02, 'Existing: Property Ownership and Plots'* map)

Iraq's Antiquities and Heritage Law Number 55 took effect in 2002, providing the legal framework for general protection of the country's antiquities. Law 55 refers in general terms and lacks specifics, but does provide for establishing boundaries and buffer zones for archaeological sites where certain activities are prohibited. (*See* Section III for descriptions of the boundary and buffer zones.) The 'Governorates Not Incorporated into a Region Law Number 21' of 2008 and the 'Protection and Improvement of the Environment Law Number 27' of 2009 can also safeguard Babylon's cultural and natural assets on a regional level but are not referenced as regularly as Law 55 when it comes to protecting archaeological sites. These laws provide the guiding principles of heritage protection in Iraq.

The Constitution of the Republic of Iraq was passed in 2005, pledging state backing for cultural institutions and placing select sites or 'national treasures' such as Babylon under federal jurisdiction. However, Article 113 of the Constitution states:

> Antiquities, archaeological sites, cultural buildings, manuscripts, and coins shall be considered national treasures under the jurisdiction of the federal authorities, and shall be managed in cooperation with the regions and governorates, and this shall be regulated by law.[226]

This clause implies a cohesive regional and federal management strategy for sites such as Babylon, while giving federal agencies the overall authority. The BSMP recognizes this dual management strategy, with the main jurisdiction given to the federal agencies, generally operating under Law 55.

More recently, Ministry of Tourism and Antiquities regulations of 2012 established that the ministry's purpose is to manage, direct, control, and develop tourism and archaeology in Iraq. While this law references the provisions of Law 55, it also transfers authority for tourism and antiquities affairs from one federal authority, the Ministry of Culture, to the Ministry of Tourism and Antiquities.

The Republic of Iraq is party to the principal treaties on cultural preservation including the 1954 Hague Convention, the 1970 UNESCO Convention, and the 1992 World Heritage Convention and has incorporated these international agreements into its national law. The LCCHP report details their relevance to Babylon.

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226 Constitution of the Republic of Iraq, 15 October 2005, http://www.unhcr.org/refworld/docid/454f50804.html. See also Lawyer's Committee for Cultural Heritage Preservation (Tess Davis), "The Legal Protection Framework for Babylon," (study commissioned by WMF, 2011), 17, 21-22, 25.

Boundary and Buffer Zones

Prior to the BSMP, Babylon had no official boundaries. The SOAH, the SBAH's predecessor, offered various propositions that generally followed the outer walls of the Neo-Babylonian city excavated by Robert Koldewey without reference to suburbs or later historic features.

A previous WHS nomination indicated no boundaries, only geographical coordinates for one position at the site.[227] The nomination included a brief reference to a 100-meter buffer zone around the outer city walls that the SOAH mentioned as a priority for their land acquisition efforts. Incomplete boundary and buffer zone information were two of the criticisms cited in the deferred 1982 nomination application.[228]

The 1990 WHS nomination suffered a similar fate partly because of inadequate documentation that again omitted a detailed perimeter.[229] This nomination presented Babylon as comprising three parts: the Outer City, the Inner City, and West City. The application stated the management plan aimed to remove "all modern buildings out of the city walls."[230] There was no reference to a buffer zone.

Lacking an official boundary, the SOAH could do little to stop encroachments, aside from the relocation of the Baghdad-al-Basra highway and parallel railway line east of the site. The Revival of Babylon Project was understood more as Saddam Hussein's personal concern than an opportunity to define and protect the site.[231]

On July 30, 2012, Acting SBAH Chairman and Director General of the Department of Investigations and Excavation (currently Vice-Minister for the State Board of Antiquities and Heritage), Qais Hussein Rasheed issued a letter pertaining to Babylon's buffer zone.[232] Babylon and Ninevah were to be considered exceptions to the proposed 300-metre buffer zone for archaeological sites set forth by SBAH. In light of existing encroachments, the Babil Inspector recommended a 100-metre buffer zone.[233] The memo essentially suggested that the larger and more important the site the smaller the buffer zone required.

Babylon's Current Legal Status

(See *BM02, 'Existing: Property Ownership and Plots'* map)

In reality, the legal framework protecting Babylon is not fully respected. The authority over Babylon's future management is disputed by federal and provincial governments and its buffers are disputed within the SBAH. Relations between the Babil Governorate and SBAH are strained; the SBAH feels the Babil Governorate wishes to exploit the site for tourism-related profits, while the Governorate believes the SBAH holds business opportunities hostage and is incapable of administering a tourist site. Arguments arise frequently over roles and expectations, undermining the effectiveness of the aforementioned laws. The successful implementation of the BSMP relies on cooperation between the SBAH and the Babil Governorate who have so far showed little sign of shared commitment.

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227 State Organization of Antiquities and Heritage, December 17, 1982. Proposition d'Inscription sur la Liste du Patrimonie Mondial Presenteé par l'Irak (unpublished), annex.

228 ICOMOS, June 1983. Recommendation on World Heritage List Inscription (unpublished); UNESCO, December 1983. Report of the Rapporteur (unpublished).

229 Directorate of Antiquities and Heritage, 1990. World Heritage List Nomination Form for Babylon (unpublished).

230 Ibid.

231 WMF interview with Faeza Hussein, 2012.

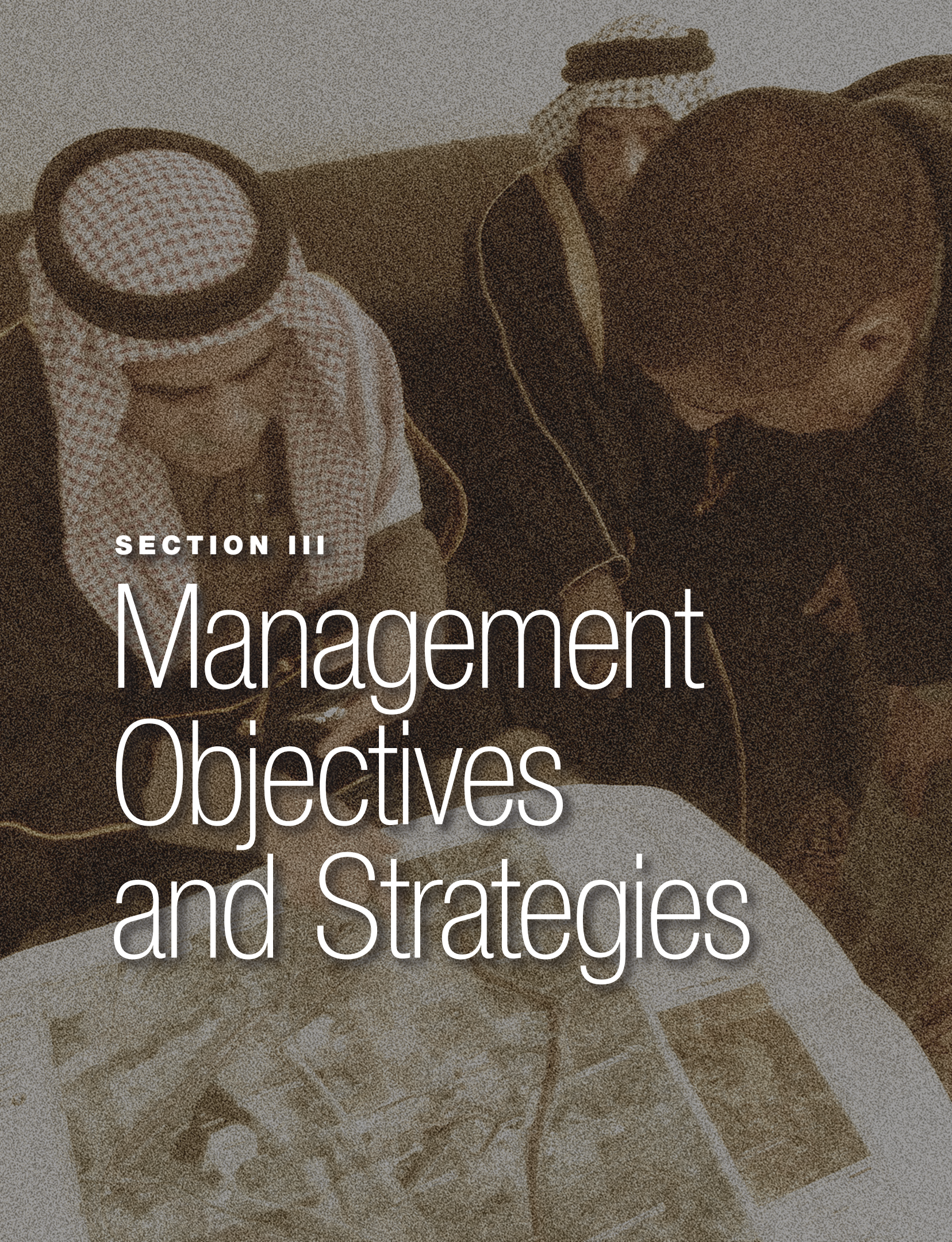
232 Qais Hussein Rasheed, letter to SBAH inspectorates, July 31, 2012 (no. 3/8012).

233 Ibid., in reference to Babil Antiquities Inspector, letter to SBAH Department of Investigations and Excavation, March 5, 2012 (no. 688).

Babylon, like all Iraq government land, is technically the property of the Ministry of Finance except for the religious sites, which are overseen by the three religious endowments. All federal laws concerning Iraq antiquities and heritage should consequently be upheld at Babylon and within its buffer zones. Theoretically, Shi'a Endowment property also falls under SBAH purview, but in practice the SBAH holds no authority over the shrine of Amran ibn-Ali at Babylon.

The most concrete proof of the gap between existing laws and reality is the rapid expansion of unlicensed development within and immediately around the site. Years of occupation and political instability, poor communication with village residents and a lack of local government support/engagement to contain development has led to growth in fragile areas. New construction particularly at Sinjar and al'Jimjmah villages continues virtually unchecked. Additionally, agricultural policies related to archaeological sites have failed to consider historical precedence, farmers' needs, and the possibility of engaging them in the site's protection.

Closer cooperation between the SBAH, the Governorate, Shi'a Endowment and local residents remains possible; the BSMP process offered opportunities to field concerns and begin to formulate common goals. Everyone agrees that Babylon is a source of pride, a great legacy that should be placed at its best advantage and shared with the world. If the values for cultural heritage, revived tourism and national pride are reaffirmed through cooperative effort, Babylon's future is secure. Without cooperation, the site is at gravest risk from the very stakeholders who were meant to protect and benefit from it.



SECTION III

Management Objectives and Strategies

Implementing the BSMP demands a coherent, dedicated management structure. Section III establishes the framework for managing the diverse resources within Babylon's cultural landscape and makes reference to phased work outlined in the Action Plan. The site's long-term preservation will rely on improving human resources and Section III begins by addressing this aspect of the plan. Engaging and utilizing primary, secondary, and tertiary stakeholders can enhance outreach and training opportunities that will further support Babylon's administration. This section recognizes Babylon's legal framework as a critical aspect of site management. Recommendations concerning the integration of regional and national legislation are made in this section.

Section III also describes general conservation approaches and offers guidelines for developing future excavation strategies. While conservation strategies are still in the preliminary stages, ongoing works at priority sites serve as case studies, illustrating the challenges of such undertakings at Babylon. Infrastructure improvements with phased implementation strategies are proposed and risk preparedness at the site is addressed. The section continues by outlining interventions improving the visitor experience. Accompanying maps illustrate these recommendations. A discussion on risk preparedness concludes Section III.

Community engagement opportunities, although complicated under current social and political circumstances, contributed to defining the recommendations found in this section.

Enhancing Human Resources

The current administrative framework for Babylon must be improved and expanded. Aside from archaeological expertise, qualified staff will have to respond to both modern pressures affecting the site and the economic opportunities that arise in managing it. The BSMP establishes management standards while building capacities to manage, protect, preserve, and sustain not only Babylon but other world-class archaeological sites under the SBAH's authority (i.e. Hatra and Samarra). Only independent, empowered management teams (functioning outside of the inspectorates' mandates and reporting directly to Baghdad authorities) will be able to confront the administrative challenges of these major archaeological sites.

The BSMP recommends management restructuring that will involve long-term commitments and will clarify responsibilities from Baghdad to Babylon. The SBAH should codify this new structure in a site operations manual outlining individual responsibilities, management hierarchy, and official channels of communication. Methods of engaging internal and external stakeholders should be formalized. The SBAH-assembled operations manual should be regarded as a companion document to the BSMP. Whereas the BSMP provides a summary outline of upper management at the site, the operations manual should detail the numbers and roles of people in each department.

Proposed Management Structure

The proposed management structure for Babylon is as follows:

Babylon Site Manager

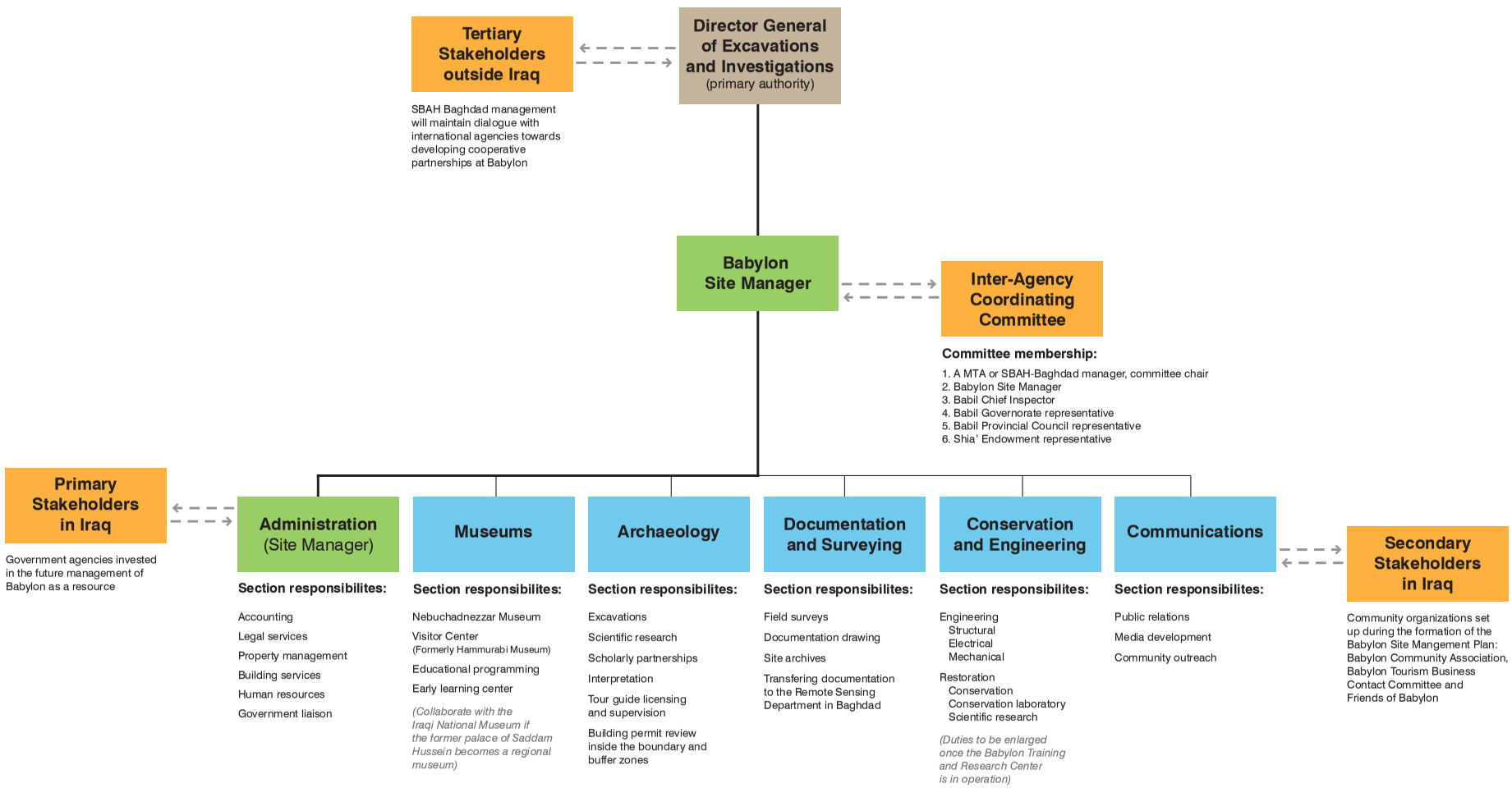
The Babylon Site Manager, the principal person charged with overseeing Babylon, has a different mandate from the Provincial Inspectorate (currently considered site manager). At the local level, the Site Manager will work within the proposed inter-agency advisory council (*see* Developing Cooperation and Partnerships, below) and liaise with the Provincial Inspectorate as needed. The Babylon Site Manager will answer directly to Baghdad, specifically the SBAH Director of Excavations and Investigations, as well as the branch of the Ministry of Tourism and Antiquities dedicated to tourism. The newly formed World Heritage office housed at the SBAH may be included in the communication channels at this level.

A fixed set of site administrators specific to Babylon (as opposed to Babil Province) will report directly to the Site Manager. Each administrator will be tasked with supervision of specific departments, with the exception of the Administration Department overseen by the Site Manager. The suggested new departments are as follows:

Administration

This department primarily handles financial matters and human resources. It will produce and manage annual and specific project budgets, track income from revenue-generating facilities, collect admission fees, perform legal services, and supervise assets and equipment. A daily concern will be site upkeep, including cleaning visitor facilities and managing the staffing necessary to undertake related tasks. An element of the Administration Department will liaise with the Babil Governorate, Babil Inspectorate, and other government agencies on behalf of the Site Manager.

The proposed Babylon Cultural Landscape and Archaeological City management structure endorsed by this site management plan.



Museums

The Babylon Museums Director will answer directly to the Babylon Site Manager, with the Iraqi National Museum in Baghdad furnishing program development and curatorial expertise. This department will operate a revamped Nebuchadnezzar Museum and the future visitors' centers (in Phase Two inside the former Hammurabi Museum and in Phase Three near Marduk Gate). The department will be responsible for developing a regional educational outreach program to promote Babylon's history through school visits and an early childhood learning center. If the former palace of Saddam Hussein is converted into a regional museum, the Museums Department will collaborate with Baghdad National Museum's efforts at the site.

Archaeology

The Archaeology Department head answers to the Babylon Site Manager. This department supervises archaeological excavations at Babylon as well as collecting, documenting, storing, and providing access to finds, while working closely with the Documentation Office in converting field excavation drawings into digital forms. The department head will coordinate with the Babil Inspectorate's archaeologists and the Iraqi National Museum in Baghdad to develop collaborations with international stakeholders such as the Vorderasiatisches Museum and British Museum. Archaeologists will supervise tour guide training, licensing, and practice and develop interpretive material with the communications department (i.e. signage, brochures). Working under the site manager, the archaeology department will also be responsible for issuing permits and monitoring new or modified construction as per regulations covering the site boundary and all buffer zones.

Documentation and Surveying

This department, established by the SBAH and WMF in 2010 as the Babylon Documentation Work Group (BDWG), will work closely with the archaeology, conservation, and maintenance departments, assisting them to prepare documentation, perform research, gather, and archive documentation on Babylon. They will liaise with international archives, particularly the Deutsche Orient-Gesellschaft and the Baghdad documentation offices, to improve Babylon's documentation. The department is responsible for equipment installation and upkeep as well as monitoring and evaluating data collected from weather stations and water depth measures. The department will conduct basic site surveys and coordinate advanced work with the SBAH's Remote Sensing Office in Baghdad and at the Babil Inspectorate level. The BDWG is also responsible for monitoring and evaluating various materials condition at the site.





Within the new management framework, archaeologists (above left) remain essential to Babylon's future; assembling documentation drawings (above right) is a priority of the Babylon Documentation Work Group.





Reconstructed structures are temporarily stabilized (top) by the conservation and engineering department, who also undertake site assessments (bottom).

Conservation and Engineering

Established in 2011 by the SBAH and WMF, this department is responsible for defining and undertaking restoration activities and engineering services. On-site duties include performing condition assessments, erecting scaffolding and shoring, undertaking scientific conservation, routine maintenance of monuments, and archaeological remains and then reporting conditions to the BDWG. The department will provide engineering support for both historical structures and all the site's structural, electrical and mechanical needs. Along with the Site Manager, the department head will interact with domestic and international stakeholders involved in conservation science.

Communications

This department will handle Babylon's public relations, working with staff archaeologists and the museums team to generate promotional materials and signage, while proactively engaging secondary stakeholders and local non-governmental interests through media development and community outreach activities.

Designating Facilities for Management, Training, and Research

In Phase Two (6 to 11 years of the BSMP), the vacant Babylon Casino building will be renovated as the new Babylon management headquarters and conservation laboratory. Located in the Museums Sub-Area (see *BM11, Intervention Sub-Area*s map), this building will house departmental offices on the top floor and a conservation laboratory on the ground level. When the Casino renovation is complete, the existing excavation house behind the Nebuchadnezzar Museum (current headquarters for Babylon management on site) will be demolished. In Phase Three (12 to 20 years of the BSMP), the SBAH will relocate management headquarters to the proposed visitors center outside the Central Administration Area boundaries, explained below, near Marduk Gate.

In Phase Three, the SBAH wishes to create a national research and training center (like the Iraqi Institute for the Conservation of Antiquities and Heritage-Erbil) in the complex now housing the Babylon Conference Center. The proposed research center would host both SBAH staff undergoing field training and Iraqi and international scholars performing collaborative research.

The BSMP recommends establishing this research center to 1) help build a solid foundation of research on Babylon 2) encourage the transfer of Babylon archives from Baghdad 3) facilitate exchange with foreign researchers, and 4) provide a venue for SBAH staff from around Iraq to be trained by national and foreign experts. For now, Iraqis are obliged to travel abroad individually or in small groups for training sessions at foreign institutions.

Developing Cooperation and Partnerships

Forming an Inter-Agency Coordinating Committee

An inter-agency coordinating committee is necessary to strengthen Babylon's management and support eventual protective legislation. It should be formed during Phase One via a memorandum of understanding between the representative members. The committee's role is not to dictate, but to advise and help solve problems in conjunction with the SBAH and its Babylon site manager. The six member inter-agency committee will include:

1. A representative from SBAH-Baghdad or Ministry of Tourism and Antiquities to act as committee chair
2. Site Manager for Babylon (SBAH-appointed new position)
3. SBAH Chief Inspector for Babil Province (responsible for archaeology and built heritage in the province outside of Babylon)
4. Babil Governorate representative
5. Babil Provincial Council representative
6. Shi'a Endowment *(Waqf)* representative with oversight of Amran Ibn-Ali shrine.[1]

When the BSMP is signed and approved this inter-agency committee will be activated and replace the Future of Babylon Committee.[2] Duties of the new committee include:

- Gazetting boundaries and buffer zones and integrating the BSMP into the Hillah Master Plan or relevant official planning frameworks. (See *BM08, 'Proposed: Boundary and Primary Buffer Zone'* and *BM09, 'Proposed: Boundary and All Buffer Zones'* maps).
- Liaising with the concerned Iraqi Government ministries and agencies regarding improvements and protection of Babylon.[3]
- Defining responsibilities between represented agencies and developing joint strategies for projects (including transferring Saddam Hussein's former palace and the Babylon Conference Center to the Ministry of Tourism and Antiquities' authority).[4] Overseeing project regulation and evaluation.
- Developing commercial properties and other visitor facilities at Babylon (See *BM11, 'Proposed: Building Interventions'* and *BM13, 'Proposed: Visitor Facilities and Presentation'* maps).
- Interacting with secondary stakeholder committees as indicated in the BSMP, including the Babylon Community Association, Babylon Tourism Business Contact Committee, and Friends of Babylon.
- Regularly monitoring and revising the BSMP.

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1 *Iraq Law No. 55 of 2002 for the Antiquities and Heritage of Iraq*, article 10. The Ministry of Religious Affairs (MRA) will continue to maintain and manage the Amran Ibn-Ali shrine in accordance with federal law. In all events, the inter-agency committee will oversee the site's development accordance with site boundary regulations.

2 Conservation activities undertaken by WMF would continue in partnership with the Babylon site manager and Conservation Action Team within the BSMP framework.

3 Concerned agencies include the Ministries of Finance, Oil, Environment, Irrigation, Water Resources, Culture, Agriculture, Interior, Shi'a Endowment, Babil Governorate, al-Hillah Municipality, and Mahawil District.

4 In 2005, a cabinet committee was formed to allocate Saddam Hussein's properties that transferred his Babylon palace to the Ministry of Culture (predecessor of the Ministry of Tourism and Antiquities) whose agency, the SBAH, is responsible for heritage sites. The Babil Governor nonetheless seized the site without permission and the Governorate has occupied it ever since.

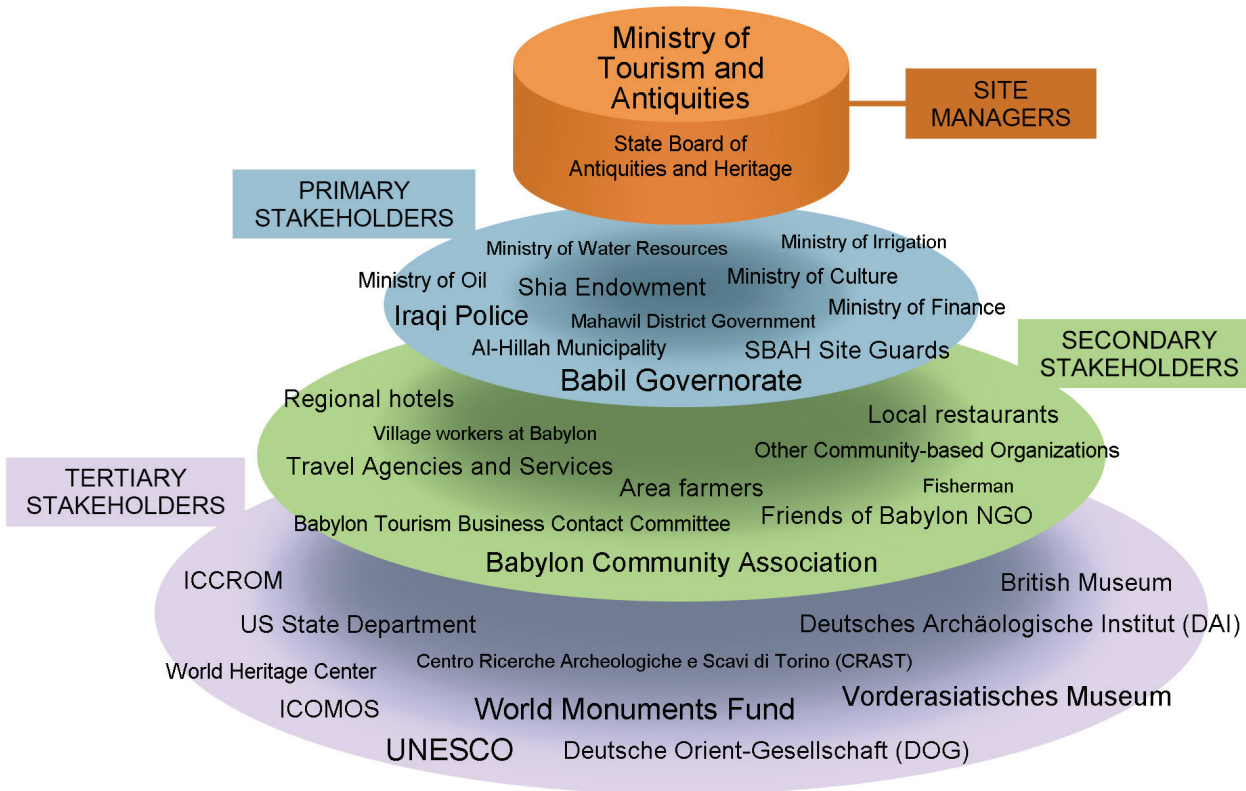
Stakeholders

Three types of stakeholders in Babylon's management and oversight were identified. The primary stakeholders are Iraqi national and provincial government agencies who claim purview over parts of the site. The secondary stakeholders are tied to Babylon's economics: occupants, visitors, and others who may profit from the site. The tertiary stakeholders include international agencies involved in past or current activities at Babylon. Based on BSMP objectives, stakeholder's potential roles in Babylon's future are described, alongside recommendations for engagement during the early phases of implementation.

Primary Stakeholders

Primary stakeholders include government agencies that are invested in the future management of Babylon as a resource. The most active are detailed in Section I, but others should be considered, including the Ministries of Finance, Oil, Environment, Irrigation, Water Resources, Culture, Agriculture, and the Mahawil District Government.

The site manager (along with the inter-agency coordinating committee) will direct communications with these agencies, developing targeted outreach and education strategies. In turn, these stakeholders should help facilitate and coordinate development and infrastructure plans that support the BSMP, while respecting restrictions placed on the site or its associated buffer zones.



The number of possible Babylon stakeholders and their roles require further elaboration.

The BSMP's successful implementation relies on cooperation. The recent installation of an oil pipeline through Babylon proves that further efforts must be made to engage the Ministry of Oil in the early stages of planning new utilities lines. Other important cases include the ministries of irrigation and agriculture, whose wish to maintain high water levels in the Shatt al-Hillah exacerbates ground water problems threatening the site's archaeological remains. Improved site security will only come through dialogue with the Ministry of Interior, and the Ministry of Environment will be an important ally in preserving and developing the natural resources cited in the BSMP.

Babil Governorate

The Babil Governorate is a pivotal stakeholder and Babylon will continue to suffer mismanagement until a solid working partnership is established between governorate officials and the SBAH. The inter-agency coordinating committee will ensure the governorate an active, advisory role in Babylon's management while offering the SBAH a communication platform to resolve issues that affect the site, particularly illegal encroachments. With the Babil Governorate's support, the SBAH can modify the Ministry of Planning's al-Hillah Master Plan, approved in 2009. Incorporating the BSMP's boundary and buffer zones regulations, approved by the Minister of Tourism and Antiquities, in the Master Plan is the most viable legal means of controlling development within and around the site.



Babil Governorate officials meet with Babylon Committee members.

Iraqi Police and SBAH site guards

Iraqi Police (a division of the Ministry of the Interior) and SBAH site guards at Babylon (employees of the Ministry of Tourism and Antiquities) are important stakeholders. Iraqi Police will secure the boundaries of the Central Administration Area (*See* BM08, 'Proposed: Boundary and Primary Buffer Zone') with vehicular patrols. Their duties include patrols and emergency response within the site boundaries, including at Sinjar and al-Jimjmah. The SBAH's unarmed site guards will secure visitor routes and the Central Administration Area mainly on foot and bicycle. Additionally, four site guards will be stationed during opening hours near the Northern Palace and Lion of Babylon, along the Processional Way and Ishtar Gate, at the Temples Sub-Area and at the former Palace of Saddam Hussein. Site guards may not conduct visitor tours. They must be uniformed, carry two-way radios and possess knowledge of first aid.

To improve security, these responsibilities must be more closely defined, taking ongoing threats to the site into consideration. The inter-agency coordinating committee can secure training for SBAH site guards to improve their skills, as has been done in the past with the Iraqi Police through the Italian Cultural Heritage Protection Squad (*Comando Carabinieri per la Tutela del Patrimonio Culturale*). The Babylon Site Manager will oversee the enforcement of new security policies and conduct regular performance reviews.

Secondary Stakeholders

Secondary stakeholders offer opportunities to open communication channels for the SBAH. Iraq's civil society suffers from numerous constraints, and community organizations are rarely formed or supported. There are, however, several locally-based groups interested in Babylon. With funding and training to anchor these nascent organizations, meaningful partnerships might be built to protect and promote the site. The SBAH should co-support, either financially or in-kind, the community groups set up by WMF (described below). In turn, these groups, with the SBAH as a partner, should seek donor funding and capacity building opportunities from other state and private agencies. Experience has shown that with some effort, backing can be found.

Babylon Community Association (BCA)

A self-organized group, the BCA comprises eight landowners, four living within the Central Administration Area and four residing between that area and the site boundary. The BCA is mainly concerned with clarifying land uses and the SBAH's acquisition terms for properties within the boundary. Channeling Babylon employment opportunities to family members is another committee aim. The preoccupation with property acquisition overshadows larger issues of interest to the communities and BCA membership does not reflect the traditional tribal network that informally governs everyday life.[5]



Babylon Community Association members review the new site boundaries.

The BCA should expand its membership to reflect the community's diversity, social networks, and concerns. Additional clan representatives (two currently sit on the committee) should be included so that matters such as public services, the quality of local education and environmental clean-up could be addressed. A diverse membership would strengthen the group's ability to elicit both the SBAH and Babil Governorate's support.

The SBAH will continue to be responsible for calling and supporting BCA meetings but if the group is to have a beneficial, sustainable role at Babylon, it should be formerly registered as an NGO and supported within the SBAH management framework. Since dialogue with local communities will help control site encroachments and other detrimental activities, the SBAH should fund BCA meetings and assist them in collecting co-funding through community membership fees and possibly outside sources.

Babylon Tourism Business Contact Committee (BTBCC)

Initiated in 2011 by WMF, this group consists of leading business owners (including the Babil Provincial Council's Tourism and Culture sub-committee chairman) and members of the SBAH Future of Babylon Committee. The BTBCC members have private sector experience and can help the SBAH address commercial concerns at Babylon, including identifying future tenants for commercial outlets, policies for operators/site usage, and best interpretive planning practices

5 In 2012 WMF commissioned Nature Iraq to conduct a socio-economic survey of a range of residents from several villages in and around Babylon. Asked about disadvantages of living in the area, residents ranked poor public services first, followed by bureaucratic obstacles presented by the SBAH that they felt needlessly restricted their freedom to use land.

based on the business operators' knowledge of visitors. In turn, business operators will be able to recruit assistance in business training, micro-enterprise loans, and other opportunities due to direct communication with leading SBAH managers in both Babil Province and Baghdad.



Babylon Tourism Business Contact committee meets with SBAH Babylon Committee members.

As with the BCA, active member participation has so far depended upon WMF presence and financial support (i.e. attendance compensation fees, lunches, etc.). Funding to support the BTBCC should come from the Babil Governorate through its tourism and business enterprise agencies such as the Babil Investment Council. This can take the form of compensation fees for attendance, access to commercial design services, and allocation of commercial contracts at Babylon. The SBAH would only cover the costs of its own representative's participation.

The committee could also seek funding from international agencies such as the World Bank, USAID and UNESCO, which operates the World Heritage and Sustainable Tourism Programme (WH+ST, *see* 'tertiary stakeholders' below). As the SBAH is pursuing a World Heritage inscription for Babylon, a WH+ST relationship with UNESCO could provide vital guidance, funding, training, and programming. The BTBCC offers an ideal platform for this engagement, one combining representatives from the antiquities' authority, Babil Governorate, and private business interests.

The Friends of Babylon

An independent, volunteer group, The Friends of Babylon is comprised of young people with civic pride, enthusiasm, and energy for preserving the site. Since the SBAH cannot legally solicit funding, the Friends of Babylon would provide an avenue for fundraising to implement special projects outside the SBAH's budget.

In order to fundraise, the Friends must be registered as an NGO, a process the SBAH should support. For now, the Friends of Babylon could partner with Youth Dream Team, an organization operating in Babil Province that is currently registering as an NGO. Under the Youth Dream Team's future license, the Friends of Babylon can implement projects in consultation with the SBAH, the Friends could contract various works, set up and maintain a website and Facebook page, sell 'official' Babylon paraphernalia, and recruit international membership and donations.

Tertiary Stakeholders

The international agencies described below have taken an interest in Babylon in the past and can help advance the aims of the BSMP. Additional tertiary stakeholders should be welcomed in the future to support the management, protection, and understanding of the site.

World Monuments Fund (WMF)

WMF has worked closely with Iraqi heritage authorities on the development of the Babylon Site Management Plan. As the Iraqi authorities implement strategies for advancing research, conservation, education, and public interpretation of the Babylon archaeological site, WMF looks forward to continuing its partnership with Babylon heritage personnel.

UNESCO and the World Heritage Center (WHC) office

The United Nations' Educational, Scientific and Cultural Organization (UNESCO) and the WHC could greatly contribute by supporting the SBAH in its bid for WHS nomination. Once a nomination is approved, training and capacity building programs through UNESCO or associated institutions would be invaluable.

The 2013 study regarding tourism development conducted for Najaf and Babil provinces by a UNESCO consultant funded by the European Union and United Nations Development Group Iraq Trust Fund, could beneficially inform a national tourism strategy, a set of policies that could be applied on a local level at Babylon, beginning with a carrying capacity analysis of the site.[6]

The UNESCO World Heritage Center coordinates the World Heritage and Sustainable Tourism Programme. The WH+ST program strengthens the heritage site's enabling environment by advocating policies and frameworks that support sustainable tourism as a means of protecting and managing cultural heritage. Like the BSMP, the programme aims to broaden stakeholder engagement in the planning, developing and management of World Heritage sites.

ICCROM

The International Center for the Preservation and Restoration of Cultural Property in Rome (ICCROM) and its associated ATHAR (Architectural-Archaeological Tangible Heritage of the Arab Region) program is ideal to formalize training in site management for the SBAH Babylon office and the proposed inter-agency coordinating committee.

ICOMOS

The International Council on Monuments and Sites (ICOMOS) could assist the SBAH in maintaining the international standards espoused in their various charters through training sessions and monitoring missions. ICOMOS could also assist the SBAH in preparing a more in-depth plan for risk preparedness as well as support the re-establishment of ICOMOS-Iraq. The re-establishment of ICOMOS-Iraq would give the country an official inter-agency coordinating body through which to communicate to UNESCO.

6 ProCare Consulting Services, "Project of Assisting the Government of Iraq to Development a National Tourism Strategy," March 2013.

Other international interests

The Deutsche Orient-Gesellschaft (DOG) and Vorderasiatisches Museum in Berlin expressed interest in formally partnering with the SBAH to exchange archival material related to Robert Koldewey's work at Babylon, a vital step towards documenting the site's history. In the past, the German Archaeological Institute (Deutsche Archäologische Institut, DAI) offered to assist in renovating displays at the Nebuchadnezzar Museum. Together with the Vorderasiatisches Museum in Berlin, keepers of a large collection of Babylon-related material including remains from one phase of Ishtar Gate, these three organizations could help upgrade exhibits at the site's museums. This has been done at other German-excavated sites such as Baalbek in Lebanon.

Since the Deutsche Orient-Gesellschaft and Vorderasiatisches Museum have established interest, the SBAH should approach them to facilitate exchange and enlist them in training and support for the Babylon staff in reassembling archives lost in 2003, museum expertise, and site presentation at Ishtar Gate. The DAI is under a different division of government, the German Ministry of Foreign Affairs. In the past it conducted excavations at Uruk, and from Germany continues research on that site. Currently the DAI conducts field work in northern Iraq, and generously sponsors training and travel opportunities for the SBAH.

The British Museum, containing one of the world's best collections of Mesopotamian artifacts, maintains a long-standing interest in Babylon. The SBAH and its Babylon site museums could benefit from the British Museum's expertise in a range of areas, including curating, presentation, interpretation, marketing, and operations. The British Museum is already collaborating with the SBAH at Basra to develop a regional museum and in 2011 provided capacity building opportunities in the United Kingdom for a former Babylon Museum Director.

CRAST (Centro Ricerche Archeologiche e Scavi di Torino) also has a long history at Babylon; the fruits of its studies contributed to the BSMP, broadening the interpretation of Babylon and adding scientific proofs of shifts in the Shatt al-Hillah's course. CRAST continues to research the site's historic urban fabric, focusing on existing data (collected before year 2000) and recent satellite photography. Renewed access to Babylon and the SBAH's continued assistance will enable CRAST to deepen our understanding of this complex archaeological site.

Reinforcing the Legal Framework

Integrating Babylon's Legal Framework with the Master Plan for al-Hillah

(See *BM08, 'Proposed: Boundary and Primary Buffer Zone', BM09, 'Proposed: Boundary and All Buffer Zones'* and *BM10, 'Proposed: Land Use'* maps)

The most recent master plan for al-Hillah (2007–2008) contains guidelines for projected development and zoning in the city. Approved in 2009 by high-level Babil Governorate officials and the Ministry of Planning, the Hillah Master Plan is being partially implemented at the level of the city planning offices.[7] Since al-Hillah's municipal limits include parts of Babylon, the Master Plan indicates how the city's development might impact the site. The plan seems to complement the BSMP and provide protection for the site, but Babylon's interests will be best served by incorporating additional BSMP recommendations and zoning-related regulations into the Master Plan as soon as possible in order to make them legally enforceable.[8]

The Babylon Site Manager and other site managers should both consult with Babil Governorate and Ministry of Planning officials and participate in the Master Plan revision process to ensure the BSMP's proposals are incorporated.[9] The inter-agency committee, which includes members of the Babil Governorate, can help arrange this participatory process. Once the regulations are approved, the SBAH's Babylon staff will be responsible for day-to-day management and control of land use applications and building permits.[10]

In order to begin efforts to revise the Master Plan, the BSMP must first be approved and distributed to the appropriate city planning authorities, along with precise requests for modifications to protect Babylon, including the following:

- The Master Plan's boundary for Babylon differs from that featured in the BSMP, and the Ministry of Tourism and Antiquities approved buffer zones have yet to be considered in the Master Plan and must be incorporated.
- The Master Plan defines the Babylon site as a 'Zone 2' land use. The plan does not explain the land use but states that it must adhere to standards set forth by UNESCO.[11] As UNESCO does not set fixed guidelines for World Heritage Site boundaries, the BSMP will act as the foundation document for Babylon's WHS nomination and its proposals for zoning integrated into the Master Plan.
- The Master Plan calls for developing concentrated residential corridors along portions of the site boundary. Directed, denser development is preferable to uncontrolled sprawl, but residential expansion should be closely monitored by the inter-agency coordinating committee. The different categories and their associated regulations of land use for the buffer zones in the BSMP address these concerns and should apply to the Master Plan as well.

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7 There are many ongoing private and state financed projects around Babylon that do not adhere to the zoning designations in the Hillah Master Plan. In the context of today's Iraq, the relevance of these zoning restrictions along with those proposed for Babylon's boundary and buffer zones, remains to be seen.

8 Iraq Law No. 55, art. 9, item 3.

9 Iraq Law No. 55, art. 8.

10 Iraq Law No. 55, art. 9, item 5 states the antiquity authority currently must grant permission for all building licenses within 1km of the site boundary.

11 Iraq Ministry of Municipalities and the General Directorate of Urban Planning, "Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah," May 2007, 10-11.

- The Master Plan designates large swaths of land along the Shatt al-Hillah south of Babylon as recreational areas or parks. Although their specific uses are undefined, these areas offer buffers between the urban fabric and the site. A greenbelt for al-Hillah has also been suggested to extend from Babil University to the Karbala Road on the city's west side. These positive design elements complement the BSMP and could be enhanced by linking to the BSMP's proposed date palm conservancy area.
- Within the boundaries of Babylon and along the riverbanks of the Shatt al-Hillah the BSMP designates new zoning for recreational areas and nature preserves that should be integrated into the Master Plan.
- The utilities pipelines east of the Shatt al-Hillah figure in the Master Plan with an expanded buffer zone of 300m on either side.[12] As per the Ministry of Oil's stated requirements, this corridor cuts through Babylon and is monitored by the ministry through the Iraqi Police and SBAH. The BSMP defines boundary restrictions and land use zoning that accommodates this change.



Official site boundary being mapped for registration at the project's start.

- The Master Plan's proposed transportation corridors are sensitive to the need for preserving the site's setting.[13] The BSMP elaborates similar, complimentary circulation proposals that should be incorporated into the Master Plan.
- Babylon is situated at the northernmost limits of al-Hillah, and part of its buffer zones lie outside of the Master Plan's mandate. The inter-agency committee should therefore coordinate with Mahawil District authorities.

Boundary and buffer zone restrictions should be legislated and integrated into governmental building codes and where appropriate, the Hillah Master Plan and other pertinent official documents. Likewise, local government must recognize the importance of cooperating with the SBAH and Ministry of Tourism and Antiquities, as they are best equipped to preserve Babylon as a resource for economic development.

12 The previous buffer zone was 50m on either side of the natural gas pipelines buried in the 1970s and 1980s.

13 Iraq Ministry of Municipalities and the General Directorate of Urban Planning, 'Updating the Master Plan for the City of al-Hillah: the Strategies of al-Hillah', May 2007 and Dar al-Handasah, 'Master Plan of the City of Hilla, Hilla City Development Strategy', July 2007. WMF received copies of the plan in two forms from the Babil Governorate in 2009. Both studies are in Arabic. SBAH supplied English translations of pertinent sections.

Defining and Enforcing Boundaries and Protected Zones

Prior to the BSMP process Babylon lacked a formal boundary, making land use restrictions ineffective. SBAH restrictions are based on internal memorandums rather than codified regulations within a statutory framework.[14] The lack of official status and the corresponding absence of administrative support from local government render the restrictions virtually useless. The consequences are evident in the expansion of residential developments inside Babylon, enlargement of the Amran ibn-Ali Shrine and the installation of a third energy (oil) pipeline through the site's eastern portion.

The same applies to the implementation of buffer zone restrictions. An unofficial buffer zone of 100 meters proposed in the 1982 WHS nomination application was never codified, but reflects some attempt at compliance with Law 55's call for established protected areas around 'national treasures'.[15] A 1982 SBAH memo mentions the need for boundaries and buffer around Iraqi sites but like Law 55 it is very general and there has been no attempt to enact it.[16] To complicate matters, zoning designations for land use inside the boundary existed separately from the boundary regulations. These have been integrated in BSMP zoning proposals.

In managing boundaries and buffer zones, the SBAH operates on the premise that the Babil Governorate is responsible for monitoring activities outside of the site boundary, yet the two agencies have rarely cooperated. As part of the BSMP's schedule of tasks the SBAH formally defined site boundaries, buffer zones, and land uses inside them (where applicable) in 2013, and these were approved by the Ministry of Tourism and Antiquities.[17] Now they must be protected in conjunction with the Babil Governorate.

In Phase One this should be followed by the production of a signed, certified, and gazetted decree recognizing these areas. With legal status secured, the boundary and buffers should be marked or indicated accordingly. In parallel, land use and zoning inside the site and within the buffer zones should also be legalized. When a land use is no longer applicable it may be replaced by those proposed on the land use map (See *BM10, 'Proposed: Land Use'* map).

The archaeologists at Babylon are the first line of defense in assuring compliance with regulations. They must patrol and investigate violations not just inside the boundaries but in all of the buffer zones, reporting them to the Iraqi Police and Governorate officials. Zoning regulations support the site's future planning and administration, and will go into immediate effect when the boundary and buffer zones are gazetted.

The reality of modern Iraq is that for every instance of regulation enforcement there is an exemption, an inconsistency that profoundly influences site protection and preservation. Property owners who reside and work within the boundaries and buffer zones are more likely to respect regulations if they see them fairly, equitably, and transparently enforced.

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14 Q. M. Rasheed, Director General of the Department of Investigations and Excavation and acting Chairman of the SBAH, Administrative Memorandum no. 3/8012, 31 July 2012.

15 Iraq Law No. 55, art. 5, item 3 and art. 6.

16 State Organization of Antiquities and Heritage, *Proposition d'Inscription sur la Liste du Patrimonie Mondial Presenteé par l'Iraq* (Baghdad: SOAH, December 17, 1982).

17 A. Kamel, Advisor to the Minister for Antiquities Affairs and Director General of the Department of Investigations and Excavation, Minister of Culture. Administrative Memorandum no. 4431, 27 June 2013.

Community Incentives

(See *BM05, 'Existing: Communities Assessment'* map)

Those living within the boundary and buffer zones should not perceive their proximity to Babylon as a complete disadvantage; establishing incentives that improve their quality of life will help combat illegal exemptions and promote compliance with regulations that preserve the site.[18] Ongoing community meetings held by the SBAH and WMF and the socio-economic survey conducted by Nature Iraq for the BSMP have helped identify potential incentives.

The SBAH should proceed by engaging expert advice to determine viable incentives and develop methods for their implementation, projects that will require financial or legal support from state authorities, and partnerships and strategies involving local and national government. Advancing an integrated approach to managing Babylon through proposals like these depends on the SBAH's partnering with the Babil Governorate and other ministries to protect the site.

In terms of thematic content, incentive programming needs to be comprehensive in order to come to grips with the complexity of the life processes and the built environment of local communities that they are meant to address and influence.[19] The sectors of education, health, infrastructure, and employment should be examined. While specific incentive projects require development, the following topics should be considered:

- Local schools are overcrowded and cannot take new students, meaning long and expensive commutes for parents transporting their children to the nearest available facility. Investing in primary school public education through new facilities and programming would alleviate a major complaint and financial burden on residents.
- Infrastructure is deficient in the communities around Babylon, the provisions of water and sanitation are basic necessities and current systems pollute archaeological deposits. Upgrades are a government responsibility and the implementation of these improvements, such as integrating ad hoc sewage systems into the municipal network, need to be tightly regulated because of their impact on Babylon.
- Solid waste disposal is a problem, and particularly acute in Bernoun. Communities are disposing of their garbage inside the boundaries so the SBAH has a role in brokering between residents and the Governorate to improve services not to mention raising awareness about the problems associated with illegal dumping.
- Creating jobs is not the SBAH's responsibility, but it can offer local residents preferential treatment regarding opportunities at Babylon to sell souvenirs, concessions, and guide visitors.
- Local residents have a limited understanding of how to develop tourism-related businesses and services. There are many international agencies specializing in micro-finance and micro-enterprise programs for local entrepreneurs in training and the production of crafts and food specialities, often through community cooperatives. The SBAH can assist offering low-rent spaces on site for sales.[20]

18 Defining tax-relief incentives for compliance to building regulations inside the boundary and buffer zones, but the absence of property tax collection in Iraq limits options to create incentives common in other countries.

19 Jurjen van Der Tas and Stefano Bianca, *An Integrated Approach to Urban Rehabilitation* (Geneva: Aga Khan Trust for Culture, 2007), 7.

20 Defining tax-relief incentives for compliance to building regulations inside the boundary and buffer zones could also be explored however, the absence of property tax collection in Iraq limits options to create incentives common in other countries.

Site Boundary

(See *BM08, 'Proposed: Boundary and Primary Buffer Zone'* map)

In 2010 as part of the Future of Babylon project, the informal site boundaries used by the SBAH were expanded in the BSMP. The new boundary includes areas comprising features that define the site's significance as a cultural landscape as well as land threatened by uncontrolled development that could reduce the site's integrity: northeast of the Summer Palace, Mount Saddam to the Shatt al-Hillah, Tell al-Jimjmah, and Mount Tammuz. The Central Administration Area is prioritized for land acquisition programs and will be meanwhile fenced. The new boundaries, measured in 2010, were approximate reference points collected through handheld GPS receivers with limited capabilities. A follow-up ground-measured field survey is required.

The Hillah Master Plan defines the Babylon site as a 'Zone 2' land use. The plan does not explain the land use but refers to a document stating that it must adhere to standards set forth by UNESCO.[21] As UNESCO does not set fixed guidelines for World Heritage Site boundaries, the BSMP will act as the foundation document for Babylon's WHS nomination. Zoning types and regulations inside the boundaries and the Primary Buffer described below will also serve to define Zone 2 in the Hillah Master Plan. These regulations supplement and in some cases supersede a 2012 Ministry of Tourism and Antiquities memorandum on archaeological site boundaries.[22]

Zoning Land Uses inside the Site Boundary and Primary Buffer Zone

(See *BM10, 'Proposed: Land Use'* map)

Beyond its value as an archaeological site, Babylon is a cultural landscape hosting traditional agriculture uses and including communities comprised of hundreds of private and public properties, and ecosystems hosting a multitude of flora and fauna. The BSMP zoning scheme for land inside the boundary and Primary Buffer Zone, reflects this diversity, while recognizing that the entire site is inherently archaeological (Zone 2 in the Hillah Master Plan). Proposed zoning designations offer a multi-faceted approach to managing land use, while taking future use and tourism potential into consideration. The zoning designations at Babylon for land inside the boundaries and Primary Buffer Zone are as follows:

Archaeological

The bulk of the site's future usage is zoned as archaeological, under full control of the SBAH, reserving these areas exclusively for visitors and scientific study. These areas often contain aboveground remains that should be preserved. Existing structures (mainly modern farmhouses) on these lands can be rehabilitated but not expanded, and in the cases of sensitive archaeological areas these properties can be inhabited and utilized for farming until the property is acquired by the SBAH.

Agricultural

This designation covers farming and pastoral pursuits and related low-density residential settlement, whether privately held or rented from a governmental agency (i.e. on land not owned or managed by the SBAH).[23] The BSMP encourages agriculture on these lands within the limits of the site boundary regulations below.

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21 Iraq Ministry of Municipalities (2007), 10-11.

22 Q.M. Rasheed, Director General of the Department of Investigations and Excavation and acting Chairman of the SBAH, Administrative Memorandum no. 3/8012, 31 July 2012.

23 Iraq Law 55, art. 9.

Residential

Residential land use is zoned for the denser communities of Sinjar and al-Jimjmah and the suburbanized areas around Mount Tammuz. Living standards in these communities vary and often include small-scale commercial enterprises. The BSMP recommends that housing following the site boundary regulations and that the commercial usage of those structures form no more than described in boundary and buffer zones regulations.

Residential and commercial mixed use

Areas along the main thoroughfares of Sinjar and al-Jimjmah have been targeted for improvements to take advantage of the economic benefits tourism can provide for the villages. Designations for this land use allow residential development within regulations, but encourage the establishment of small-scale guesthouses, travel agencies, shops, and cafés. In each community, tourism-related development must be controlled and maintained within regulation standards listed below.

Commercial

Several commercial land use areas within Babylon contain visitor facilities developed for past Babylon festivals. The BSMP encourages reducing modern structures in sensitive archaeological areas and, in many cases, calls for their removal in order to focus commercial activity along Marduk Street, the central east-west axis through the site. Emphasis is on limited services inside the boundaries and encouraging development in local communities. The BSMP proposes no new commercial development within the boundary and Primary Buffer Zone outside of these designated areas, and only as under the authority of SBAH management.

Institutional

Institutional land is designated for activities that serve the public (visitor and non-visitor), irrespective of its ownership and management status. Existing institutional facilities include the following sub-categories:

- Cultural: including open areas and buildings used for performances, museums, exhibit spaces, archaeological displays, and other activities of cultural relevance.
- Community: including public information outlets, health clinics, and other facilities servicing communities at the neighbourhood level.
- Educational: including schools, nurseries, learning centers, and other facilities established for educational purposes.

Religious

The Shrine of Amran Ibn-Ali on Amran Hill is zoned for religious land use. The Shi'a Endowment operates the shrine and the SBAH controls the land but has so far provided little supervision. Religious centers in Sinjar (two, one Shia' and one Sunni) and al-Jimjmah (two Shia') also belong to this designation.

Nature preserves and public green areas

Large tracts of land are designated for nature preserves to provide green areas for the public while removing or curbing unwanted development. Some are archaeological areas will be left undeveloped and uncultivated until scientific study is undertaken; others are destined for low-impact and reversible development as nature trails or recreational facilities for visitation. In all cases these areas will be interpreted in strict keeping with the boundary and Primary Buffer Zone regulations.

Site Boundary Regulations

A series of regulations will guide the development of the numerous current and future land uses inside the site boundary. While expert planning advice is still required to formulate the legal detailed building code regulations appropriate for historic sites, general guidelines that will go into immediate effect when the boundary is gazetted include the following:

Built environment

- New permanent buildings and structures are prohibited for land use zoned as 'archaeological', 'agricultural', 'residential', 'institutional' and 'religious'.
- Modifications to existing structures zoned as 'archaeological', 'agricultural', 'residential', 'institutional' and 'religious' which do not enlarge a building footprint or increase building height are permitted with prior approval of the SBAH providing they respect regulations.
- New permanent commercial structures are permitted where zoned 'residential and commercial mixed use' and 'commercial' as long as they serve tourism development and respect regulations, pending SBAH approval. For 'residential and commercial mixed use' commercial usage of a plot cannot form more than 50 percent of the plot's built area. In cases of new construction the SBAH will approve and monitor impact, design, and building materials.
- New construction or additions to existing structures cannot exceed one floor and five meters in total height.
- Exposed brick finishes are prohibited in new structures and modifications to existing ones. Plastering will be the basic finishing material for all storeys. Materials and finishes will be subject to SBAH review and the following will not be permitted: cement and other sprayed-on rough plaster finishes, tiling, marble paneling, aluminum paneling, plastic.
- Roof surfaces must be coated with bitumen.
- The maximum height of roof parapets is 110 cm.
- Basements and underground structures are prohibited.
- Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. The tanks' maximum depth will not exceed 2.25 meters from the surface with maximum dimensions of 2 meters by 2 meters. Solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech pollutants and compromise archaeological remains.
- New fence lines of solid materials around private properties are prohibited.

Natural environment

- Activities that threaten the environment will be forbidden. These include industries that produce air and ground pollution and solid waste, such as brick kilns, factories, auto repair, and chemical production.
- New water wells are prohibited without SBAH permission.
- Dumping of waste or toxins on archaeological lands is prohibited.[24]
- Hunting and fishing are forbidden within the site boundary except recreational single pole and line fishing with permits issued by the SBAH along the Shatt al-Hillah. Dynamiting and net fishing is strictly forbidden.

24 Iraq Law 55, art. 15, item 5.

Agricultural activities

- Farming is permitted only on established plots zoned 'agricultural' and on properties with recognized contracts containing agricultural clauses. Farming is prohibited inside the Central Administration Area, the Summer Palace Sub-Area, and where the SBAH has identified archaeological remains for protection.
- On properties under cultivation, only seasonal shallow-root farming will be allowed.
- New date palm planting is prohibited inside the Central Administration Area, the Summer Palace Sub-Area and where archaeological remains are identified for protection by the SBAH. On land between these zones and the outer site boundary planting of date palms is permitted only to replace previously existing trees. Irrigation practices outlined in the regulations will be permitted pending SBAH approval.
- New fruit/nut trees are permitted only under date palms or near residences (where they are traditionally planted). Orchards are prohibited.
- New irrigation canals or dredging of existing canals is prohibited unless approved by the SBAH. New irrigation trenches are restricted to 25 cm in depth and 50 cm in width.[25] Spray irrigation will be permitted.
- Livestock grazing is prohibited inside the Central Administration Area, the Summer Palace Sub-Area and where SBAH identifies archaeological remains for protection. Small-scale livestock grazing will be permitted in other areas.
- Use of heavy vehicular farming equipment such as tractors, combines and deep soil ploughs is prohibited within the Central Administration Area, the Summer Palace Sub-Area and where archaeological remains are identified for protection by the SBAH. Where agriculture is zoned between these areas vehicular farming equipment will be strictly regulated by the SBAH.
- Cases of illegal construction or other activities are subject to demolition, fines, and possible imprisonment, as called for by the designated law.

Acquiring Private Property inside the Boundaries

(See *BM02, 'Existing: Property Ownership and Plots', BM10, 'Proposed: Land Use'* and *BM14, 'Risk Preparedness'* maps)

The BSMP acknowledges private ownership inside the site boundaries as part of Babylon's future, but in accordance with Law 55 envisages the acquisition of private properties in sensitive archaeological and natural resource-rich areas.[26] Prioritizing land purchases is complicated by the lack of sufficient updated data on ownership and tenure so the Babylon Community Association can function as intermediary for the inter-agency committee and land owners. The Priority Areas and Strategic Timeline map designates and prioritizes private lands for acquisition. Properties in the Central Administration Area are to be purchased in Phases One (one to five years) and Two (six to eleven years), and those outside in Phase Three (twelve to twenty years). Having defined a timetable, it must be said, property acquirement is complicated by the types of ownership, laws of inheritance and forced acquisition being nearly impossible in contemporary Iraq.

25 Muayyad Said Demerji, Department of Investigations and Excavation, Directorate of Antiquities and Heritage, Administrative Memorandum no. 5187, 11 February 1998.

26 Iraq Law No. 55, art. 6, items 1-2.

Demarcating and Monitoring Buffer Zones

The definition of setting requires an appreciation of the history and evolution of Babylon's character-defining features (*see* Section I).[27] Protecting the setting of archaeological properties is considered an essential management component, acknowledged in international charters and Iraqi law.[28] Just as buffer zones aim to protect the site from activities that could compromise its integrity, significance, and values, so view sheds seen from and looking onto the site must be considered.

Once the setting for Babylon was defined (*see* Near Buffer Zone) questions arose concerning the extent to which the surroundings should be maintained to best preserve the rural landscape while allowing for its evolution. Protective regulations consequently address the specific needs of each buffer zone. For example, within the Primary Buffer Zone, which is in direct visual proximity to the site, the regulations duplicate those found in the boundary. For the Near Buffer Zone protecting the immediate setting, building is allowed under restrictions and design consultations to ensure careful development of the near view shed environment.

In the Extended Buffer Zone, large-scale intrusions visible from high points within the site such as factory chimneys, multi-storey buildings, high-voltage lines, communication antennae, and industrial pollution, must be regulated in cooperation with government entities.[29] For buffer zones to be effective they must have logical borders based on visually recognizable landmarks and clear sets of restrictions that are easily understood.[30]

Primary Buffer Zone

(See *BM08, 'Proposed: Boundary and Primary Buffer Zone'* and *BM09, 'Proposed: Boundary and All Buffer Zones'* maps)

Like the site boundary, the Primary Buffer Zone is in Zone 2 of the Hillah Master Plan. The purpose of the Primary Buffer Zone is to strengthen protection of the site boundaries by preserving the immediate setting in a manner consistent with the site.

The limit of the Primary Buffer Zone is 100 meters from the Babylon site boundary except at three locations where it deviates to follow natural and manmade features. Descriptions of these exceptions, moving clockwise around the site boundary, are as follows:

- At the southeast corner of the site boundary, the Primary Buffer Zone enlarges beyond 100 meters to follow the east bank of the Babil River until it connects to the Baghdad-al-Basra Highway. Here the outermost edge of the Primary Buffer Zone turns west and parallels the north shoulder of the highway. The buffer zone then alternates between just under and just over 100 meters until the highway turns south at al-Jimjmah – North.
- Due west of Sinjar village, the Primary Buffer Zone parallels the Hindiya-al-Kifl Irrigation Canal. Here the width of the Primary Buffer Zone alternates between just under and just over 100 meters.
- Where the site boundary follows the Shatt al-Hillah, the Primary Buffer Zone adheres to the west side of the riverbank rather than a strict 100 meters from the site boundary.

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27 Johann Mürner, preface of *World Heritage and Buffer Zones, International Expert Meeting on World Heritage and Buffer Zones, Davos, Switzerland 11-14 March 2008,* O.Martin and G.Piatti, eds. (UNESCO World Heritage Centre, Paris 2009) 11 -13.

28 Iraq Law No. 55, art. 5.

29 Herb Stovel, "ICOMOS Position Paper," *World Heritage and Buffer Zones, International Expert Meeting on World Heritage and Buffer Zones, Davos, Switzerland 11-14 March 2008*, 23-42.

30 Ibid., 48.

Primary Buffer Zone Regulations

A series of regulations will guide the development of the numerous current and future land uses inside the Primary Buffer Zone. Although additions to existing structures are allowed for certain land use categories, to provide incentives to engage local property owners in site protection and to encourage the survival of al-Jimjmah and Sinjar as communities, the SBAH will be responsible for controlling these developments. General guidelines that will go into immediate effect when the boundary is gazetted include the following:

Built environment

- New permanent buildings and structures are prohibited for land use zoned as 'archaeological', 'agricultural', 'residential', 'institutional', and 'religious'.
- Modifications to existing structures zoned as 'archaeological', 'agricultural', 'residential', 'institutional', and 'religious' that do not enlarge a building footprint or increase building height are permitted with prior approval of the SBAH providing they respect regulations.
- New permanent commercial structures are permitted where zoned 'residential and commercial mixed use' and 'commercial' as long as they serve tourism development and respect regulations, pending SBAH approval. For 'residential and commercial mixed use' commercial usage of a plot cannot form more than 50 percent of the plot's built area. In cases of new construction the SBAH will approve and monitor impact, design, and building materials.
- New construction or additions to existing structures cannot exceed one floor and five meters in total height.
- Exposed brick finishes are prohibited in new structures as are modifications to existing ones. Plastering will be the basic finishing material for all storeys. Materials and finishes will be subject to SBAH review and the following will not be permitted: cement and other sprayed-on rough plaster finishes, tiling, marble panelling, aluminium panelling, plastic.
- Roof surfaces must be coated with bitumen.
- The maximum height of roof parapets is 110 cm.
- Basements and underground structures are prohibited.
- Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. The septic tanks' maximum depth will not exceed 2.25 meters from the surface with maximum dimensions of 2 meters x 2 meters. Solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech pollutants and compromise archaeological remains.
- New fence lines of solid materials around private properties are prohibited.

Natural environment

- Activities that threaten the environment will be forbidden. These include industries that produce air and ground pollution such as brick kilns, factories, auto repair, chemical production, and solid waste.
- New water wells are prohibited without SBAH permission.
- Dumping of waste or toxins on archaeological lands is prohibited.
- Hunting and fishing is forbidden within the Primary Buffer Zone except recreational single pole and line fishing with permits issued by the SBAH along the Shatt al-Hillah. Dynamiting and net fishing are strictly forbidden.

Agricultural activities

- Farming is permitted only on established plots 'agricultural' and on properties with recognized contracts containing agricultural clauses. Farming is prohibited where the SBAH identifies archaeological remains for protection.
- On properties under cultivation, only seasonal shallow-root farming will be allowed.
- New planting of date palms is prohibited inside the primary buffer zone. The planting of date palms is permitted only to replace previously existing trees. Irrigation practices outlined in the regulations and with approval of the SBAH will be permitted.
- New fruit/nut trees are permitted only under date palms or near residences (where they are traditionally planted). Orchards are prohibited.
- New irrigation canals or dredging of existing canals is prohibited unless approved by the SBAH. New irrigation trenches are restricted to 25cm in depth and 50cm in width. Spray irrigation will be permitted.
- Small-scale livestock grazing will be permitted.
- Use of heavy vehicular farming equipment, such as tractors, combines, and deep soil ploughs is prohibited where archaeological remains are identified for protection. In areas between these zones it will be strictly regulated.
- Cases of illegal construction or other activities are subject to demolition, fines and possible imprisonment, as called for by the designated law.

Near Buffer Zone

(See *BM08, 'Proposed: Boundary and Primary Buffer Zone'* and *BM09, 'Proposed: Boundary and All Buffer Zones'* maps)

Farming at Babylon in the early twentieth-century was restricted by the availability of irrigated water. In 1913, improved irrigation enabled farmlands to expand. As noted in Section I, Ottoman-era property laws supported agricultural land use. Until the 1980s, the area comprising the Near Buffer Zone consisted largely of cultivated fields dotted with compact settlements around archaeological remains. This was the site's state during Robert Koldewey's time and is captured in numerous articles, photographs and illustrations.

The Revival of Babylon project, the first major deviation from this traditional landscape, definitively altered the archaeological setting. The introduction of modern transportation systems and infrastructure drastically changed the site. Politics and economics subsequently influenced Babylon's management. Land use policies and practices often had a detrimental effect on both the archaeological site and the way of life of local residents. In 2003, civil authority effectively collapsed, sparking uncontrolled development around Babylon that further compromised the site's setting.

The BSMP establishes a Near Buffer Zone to retain the vestiges of Babylon's traditional rural setting in keeping with the defined significance of Babylon Cultural Landscape and Archaeological City.

Since view sheds to and from Babylon also influence setting, topographic features, and legal property boundaries define the outermost border of the Near Buffer Zone rather than a set distance in meters from the site. These measures, based on visual reference points lying on average 750–1200 meters from the site boundary, are easier to convey to both land users and government agencies, especially when it comes to enforcing the proposed restrictions and regulations.

The border of the Near Buffer Zone, moving clockwise from the Baghdad-al-Basra Highway to the north of the site, is as follows:

The **eastern limit** of the Near Buffer Zone follows the Nil River from the Baghdad-al-Basra Highway at the north to a series of farm roads and irrigations canals between the Nil and Babil Rivers.[31] The eastern limit continues southwest until arriving at the elevated roadbed of the new extension of the Hillah-Kish Highway.

The **southern limit** of the Near Buffer Zone follows the elevated roadbed of the Hillah-Kish Highway's new extension west until reaching the Baghdad-al-Basra Highway. The southern limit continues south across the Shatt al-Hillah bridge and follows Road 60 towards al-Hillah until the amusement park where it turns west. The limit then follows the northern-most development boundary of the modern 17th of July neighborhood north of Algeria Street, towards a municipal water filtration system facility.

The **western boundary** of the Near Buffer Zone turns northwest at the water filtration facility until it reaches the Hindiya – al-Kifl Irrigation Canal, following the canal north for approximately three kilometers until reaching the Furat Fisheries. Here the boundary parallels the Annanah Village Road northeast before diverging directly north along a distributor road to a secondary irrigation canal leading towards the Shatt al-Hillah and follows its line across the river to the edge of Bernoun village.

The **northern boundary** of the Near Buffer Zone moves from the palm groves at the southern edge of Bernoun village northeast across the Bernoun Road through farm fields to the junction of the Nil River and the Baghdad-al-Basra Highway.

The Near Buffer Zone acknowledges the inevitable tide of land development that is fuelling Babil Province's economic revival, but if left uncontrolled, it will destroy Babylon's setting. To preserve the landscape with regulated development, the Near Buffer Zone is divided into three distinct zoning categories:

Near Buffer Zone A
Near Buffer Zone A aims to retain Babylon's traditional rural setting by encouraging low-density, single-story detached housing, and agricultural activities that do not obstruct vistas to and from the site. In addition, this zone attempts to contain commercial development along the Baghdad-al-Basra Highway corridor. Near Buffer Zone A nearly surrounds Babylon on the west, north, and east sides. Most of this land lies outside of the Hillah Municipality and within the Mahawil provincial district.

Near Buffer Zone B
Regulations for this buffer zone closely follow 'Zone 4, Residential with Low Density' policies outlined in the Hillah Master Plan. These address the ongoing suburbanization between central al-Hillah and Babylon's south boundaries. The BSMP's building regulations for this zone reflect those found in the Hillah Master Plan with some modifications.[32]

Near Buffer Zone C
Policies outlined in the Hillah Master Plan 'Zone 6, Mixed Use' category are utilized for this buffer zone with added restrictions on building height and finishes. This zone is designed for the traditional core settlement area in al-Jimjmah, where a higher built density is encouraged in order to reduce sprawl.

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31 The Nil and Babil 'rivers' are Ottoman-era canals fed by the Shatt al-Hillah.

32 Iraq Ministry of Municipalities (2007), 10-11.

Built environment regulations for Near Buffer Zone A, Near Buffer Zone B, and Near Buffer Zone C all share the same restrictions for the natural environment.

Near Buffer Zone A regulations for the built environment are as follows:

- New residential buildings will be permitted in Primary Buffer Zone A if the Urban Planning Office of the al-Hillah Municipality and the SBAH grant permission for the building permit.
- New commercial buildings are prohibited.
- Exposed brick finishes are prohibited. Plastering will be the basic finishing material for all storeys. Materials and finishes of structures will be subject to SBAH review and the following finishing materials will not be permitted: cement and other sprayed-on rough plaster finishes, tiling, marble panelling, aluminium panelling, plastic.
- All new construction will be set back eight meters from the front of the property and six meters from the back of the property.
- On any given plot, the built footprint will constitute a maximum of 20 percent of the property.
- New construction or additions to existing structures cannot exceed one floor and five meters in total height.
- Roof surfaces must be coated with bitumen. Roof extensions should account for no more than forty percent of the roof structure. These extensions can be open or walled and must have a pitched or flat roof, the latter coated with bitumen.
- The maximum height of roof parapets is 110 centimeters.
- Fence lines of solid materials are limited to 120 centimeters in maximum height and gate posts to a maximum of 140 centimeters.
- Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. For septic tanks the maximum depth is not to exceed 2.25 meters from the surface with maximum dimensions of 2 meters by 2 meters and solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech underground pollutants and compromise archaeological remains.
- The SBAH will monitor new construction in terms of impact, design, and materials.[33]

Near Buffer Zone B regulations for the built environment are as follows:

- New detached or semi-detached residential buildings will be permitted in Near Buffer Zone B if the Urban Planning Office of the al-Hillah Municipality and SBAH grant permission for a building permit.
- New single-storey commercial buildings are allowed with a maximum footprint of 30 percent of the property.
- New residential construction will be set back 6.5 meters from the front of the property and 5 meters from the back of the property.
- On any given plot, the built footprint will constitute a maximum of 30 percent of the property.
- Building heights of new construction or additions to existing structures cannot exceed two floors and 7 meters total. For single-story buildings the ground floor height cannot exceed 5 meters.
- Roof surfaces must be coated with bitumen. Roof extensions should account for no more than 60 percent of the roof structure. These extensions can be open or walled and must have a pitched or flat roof, the latter coated with bitumen.
- The maximum height of roof parapets is 110 centimeters.
- Fence lines of solid materials are limited to 120 centimeters in maximum height and gate posts to a maximum of 140 centimeters.

33 Iraq Law No. 55, art. 9.

- The SBAH will monitor new construction in terms of impact, design, and materials.[34]
- Near Buffer Zone C regulations for the built environment are as follows:
- New detached or semi-detached residential buildings will be permitted in Near Buffer Zone C if the Urban Planning Office of the Hillah Municipality and SBAH grants permission for a building permit.
- New commercial, institutional buildings are allowed if the Urban Planning Office of the al-Hillah Municipality and SBAH grant permission for a building permit.
- New construction must be set back 3.5 meters from the front of the property and 3 meters from the back of the property.
- On any given plot, the built footprint will constitute a maximum of 50 percent of the property.
- Building heights of new construction or additions to existing structures cannot exceed two floors and 7 meters total. Buildings can be of one or two storeys.
- Roof surfaces must be coated with bitumen. Roof extensions should account for no more than 60 percent of the roof structure. These extensions can be open or walled and must have a pitched or flat roof, the latter coated with bitumen.
- The maximum height of roof parapets is 110 centimeters.
- Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. For septic tanks the maximum depth is not to exceed 2.25 meters from the surface with maximum dimensions of 2 meters x 2 meters and solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech underground pollutants and compromise archaeological remains.
- The SBAH will monitor new construction in terms of impact, design, and materials.[35]

Near Buffer Zone A, B and C common restrictions are as follows:

- Activities that threaten the environment are forbidden, including industries that produce air and ground pollution and solid waste such as brick kilns, factories, auto repair, and chemical production.[36]
- Organic waste disposal will consist exclusively of septic tanks with a 'closed' system or piped connection to municipal networks. The septic tanks' maximum depth will not exceed 2.25 meters from the surface with maximum dimensions of 2 meters by 2 meters. Solid waste must be routinely pumped out and disposed of through the municipality or a recognized service provider. The site management plan recommends replacing all existing tank systems using 'open' non-partition and partition designs as they leech pollutants and compromise archaeological remains.

34 Iraq Law No. 55, art. 9.

35 Iraq Law No. 55, art. 9.

36 Iraq Law No. 55, art. 15, item 5.

Date Palm Conservancy Area (DPCA)

(See *BM07, 'Existing: Natural Resources'*
and *BM09 'Proposed: Boundary and All Buffer Zones'* maps)

Date palm groves have traditionally defined Babylon's setting and provide an appropriate visual backdrop for the Central Administration Area. The five kilometre-long canopy of palm groves west of the Shatt al-Hillah forms an integral part of the Near Buffer Zone and serves as a defence to al-Hillah's suburban development, protecting the historical use of the cultural landscape as well as preserving views and vistas. These groves are currently being cut down to make way for housing and other encroachments, placing Babylon's setting at risk.

The BSMP proposes a Date Palm Conservancy Area (DPCA) as an extension to the agricultural green belt running along the west side of the city featured in the Hillah Master Plan (*see* BM09, 'Proposed: Boundary and All Buffer Zones' map). The DPCA aims to preserve all date palms within the designated boundaries extending to the Shatt al-Hillah, to safeguard agricultural traditions and landscapes, curb new construction, and protect site views and vistas. Within the DPCA no palm shall be cut or removed and new planting is permitted only to replace previously existing trees.[37]

The DPCA should be established and enforced by the SBAH, in cooperation with the Babylon Community Association (*see* 'Developing Cooperation and Partnerships') and in consultation with pertinent government agencies and university departments. Restrictions on activities within the DPCA should be coupled with incentives defined by local communities. Enforcement can be best achieved through the cooperation of the SBAH and Babil Governorate.

Extended Buffer Zone

Babylon's Extended Buffer Zone, running 3000 meters from the site boundary, serves to protect the site's view shed, setting, and environment. This buffer zone regards Babylon's high topographic points (the Summer Palace tell, Amran Hill, and three artificial hills) as character-defining features integral to the site's significance.

- Activities that threaten the environment are forbidden, including industries that produce air and ground pollution such as brick kilns, factories, chemical production, and solid waste.[38]
- New building must be approved by the SBAH and Babil Governorate and comply with the Hillah Master Plan codes. Building height will not exceed 9.5 meters. This height limit supersedes the zoning regulations of the Master Plan where they overlap with the extended buffer zone. The SBAH must be consulted on all large-scale interventions, including installation of communication antennas, and high-voltage electricity lines.

(See *BM03, 'Existing: Building Inventory' map and BM11,*
'Proposed: Intervention Sub-Areas' map)

37 Iraq Law No. 55, art. 15, item 4.

38 Iraq Law No. 55, art. 15.

Defining a Site Planning Methodology

In the interest of effectively managing Babylon and in accordance with international standards, the BSMP recommends establishing a solid structure for the site's administration, cementing supportive partnerships, and strengthening the exiting legal framework. Due to its size and diverse occupancy, Babylon requires detailed central area and sub-area planning for clusters of properties and communities sharing common identity, purpose or complexity inside the boundaries. Site administration methods include defining these areas in order to address their use and needs (i.e. infrastructure, signage, hardscape, traffic circulation design) through a process to be implemented in stages.

Each planning sub-area is described below. Descriptions are accompanied by map location codes in brackets; please refer to *BM03, 'Existing: Building Inventories'* and *BM11, 'Proposed: Intervention Sub-Areas'* maps to understand the location and limits of each planning area.

Central Administration Area

The Central Administration Area, the nucleus of Babylon, will encompass the most important area for visitors so comprehensive management of this area is essential. The area covers overlapping sub-areas, water features added in the 1980s, and the Shatt al-Hillah. Governed under the strictest of terms of Law 55 and the regulations of the site boundary, the Central Administration Area must be formally defined and fenced so the SBAH can begin land acquisition efforts placing all of its property under direct government ownership and SBAH management. The Central Administration Area will become the ticketing area and focus of visitor services upgrades.

Types of Sub-Areas for Intervention

The sub-area strategies provide a road map for extended future planning and management. Each sub-area is to be developed with proper documentation before interventions, design guidelines, base drawings, bills of quantities, budget outlines, etc. are proposed (See *BM15, 'Proposed Museums Sub-Area Interventions'* map for an example of more detailed planning guidelines). Baseline information for sub-areas that should be incorporated into any plans for intervention appears below. Emphasis is given to the communities found within the site.

Sub-Areas for Circulation and Traffic Improvement

Several traffic corridors on Babylon's periphery have been identified for improvement to ease traffic flow, increase safety, and present pleasing approaches to the site.

Sub-Areas of Predominantly Archaeological Remains for Intervention

For archaeological sub-areas, the BSMP recommends that the SBAH and the Ministry of Tourism and Antiquities tailor interventions to the resources and uses found in the area. This sub-area type may require conservation and presentation strategies based on broader guidelines outlined below.

Sub-Areas of Predominantly Modern Structures for Intervention

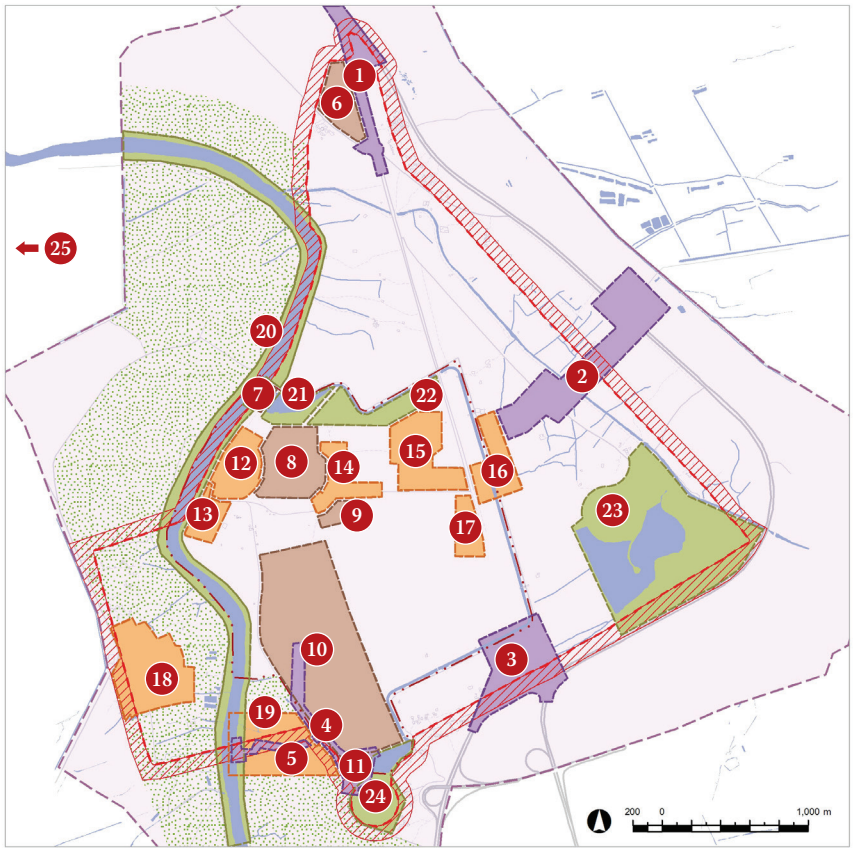
Sub-areas with predominantly modern structures require strategies focusing on design guidelines and future functions; several structures included in these sub-areas once served Babylon visitors. Several of these areas contain commercial and residential structures that may provide opportunities for economic development that necessitate further study.

Choices about redeveloping commercial properties would be aided by further examination of the potential of these buildings through a carrying capacity study conducted in parallel with condition assessments of building envelopes, utility lines, sidewalk and paving. Demolishing structures that compromise the site will allow for a fresh take, reinforcing a new approach to Babylon's management. Reducing the modern footprint will help restore the site's authenticity while making more green space available for visitors.

Sub-Areas of Natural Resources for Preservation

Several areas within the site have been identified for nature conservation that would benefit local communities and visitors, while preserving the site's setting and enhancing its cultural significance.

Map of Sub-Area Locations and Intervention Types



1 North Entrance Corridor
2 Future Route of Railway Connector
3 South Entrance Corridor
4 Amran Entrance Corridor
5 Al-Jimjmah Commercial Corridor
6 Summer Palace Sub-Area
7 Warsaw Gate Sub-Area
8 Palaces Sub-Area
9 Temples Sub-Area
10 Ziggurat and Amran Sub-Area
11 Tell al-Jimjmah Sub-Area
12 Saddam Palace Sub-Area
13 Conference Center Sub-Area
14 Museums Sub-Area
15 Greek Theatre Sub-Area
16 Future Visitor Center Sub-Area
17 Inspectorate Sub-Area
18 Sinjar Village Sub-Area
19 Al-Jimjmah Sub-Area
20 Shatt al-Hillah Riverbank Sub-Area
21 Lake Saddam Sub-Area
22 High Grass Sub-Area
23 Future Nissan Park Sub-Area
24 Lake Tammuz Sub-Area
25 Al-Furat Fisheries (2 kilometers west)

LEGEND

- Babylon Cultural Landscape and Archaeological City boundary
- Primary Buffer Zone
- Central Administration Area (CAA)
- Near Buffer Zone
- Sub-areas for circulation and traffic improvement
- Sub-areas of predominantly archaeological remains for intervention
- Sub-areas of predominantly modern structures for intervention
- Sub-areas of natural resources for preservation
- Date Palm Conservancy Area (DPCA)

Sub-Areas for Circulation and Traffic Improvement

North Entrance Corridor
The North Entrance Corridor, the primary access route to Babylon, originates at the Baghdad-al-Basra Highway to south of the palace near the Saddam Hussein sign.

Future Railway Station Connecting Corridor
With construction of a new site visitor center near Marduk Gate and the proposed railroad stop at the Baghdad-al-Basra Highway, this corridor could conduct pedestrian and bicycle traffic across agricultural fields connecting these two areas.

South Entrance Corridor
Abandoned since the 1980s when the Baghdad-al-Basra Highway was rerouted, this part of the highway with the Hammurabi statue in the middle lies between the Hawliyah Canal and the new highway route providing access to local communities to the east and west.

Amran Entrance Corridor
This corridor is the main route used by pilgrims to the Shrine of Amran ibn-Ali. The indirect approach originates at Road 60 (extension of the Babylon-al-Basra Highway south of Babylon) via al-Jimjmah, past Mount Tammuz, and around Tell al-Jimjmah.

Al-Jimjmah Commercial Corridor
This corridor follows the main street of al-Jimjmah extending parallel to the southern site boundary between Tell al-Jimjmah and the Shatt al-Hillah. This corridor holds particular tourism potential for the community of al-Jimjmah.

Sub-Areas of Predominantly Archaeological Remains for Intervention

Summer Palace Sub-Area
Located at the far north end of Babylon, this triangle-shaped sub-area has an important history and distinctive archaeology with special needs owing to the long-term exposure of excavated layers.

***Palaces Sub-Area,* (*see buildings* NH10-15; NH17-18; and NH20-28)**
Comprising archaeological sites, numerous interventions and modern monuments, this sub-area's diverse resources are bound by their proximity and future opportunities for visitor presentation. The large-scale reconstruction of the Southern Palace contrasts with the ruined Northern Palace. Between them, the Inner City Wall embodies similar contradictions: the eastern half was reconstructed while the western half saw only basic conservation. The Lion of Babylon, at the northern end of the Processional Way, is a singular landmark, popular with visitors for the photo opportunity it presents. Moving south along the Processional Way are the Ishtar Gate and the reconstructed Ninmah Temple.

***Warsaw Gate Sub-Area* (NM07; NM68-69; and NM75)**
Designated by the SBAH as a valuable element of contemporary site history, Warsaw Gate, a remnant of Camp Alpha, is a self-contained, intact structure in need of conservation and interpretation.

***Temples Sub-Area* (SH03-08)**
This cluster of temple and residential reconstructions demonstrates efforts to present Nebuchadnezzar-period monuments to the public during the 1980s. Made from common building materials, these reconstructions were based on foundations and, in some cases, lower wall remains of original structures that were excavated over a period of 80 years.

***Ziggurat and Amran Sub-Area* (SH09; SM03-08; SM10-12; SM14; SH15-17; SM20; SM51; SM70; SM95-99)**
This sub-area covers an open expanse of hillocks containing the modern cemetery on Amran Hill, with a significant excavation at Esagila Temple, the ziggurat or Tower of Babel, and the Shrine of Amran ibn-Ali. Although distinct from one another, these major features are bound together by not only proximity, but their shared recognition of a sacred place in history.

***Tell al-Jimjmah Sub-Area* (SH10)**
Tell al-Jimjmah is a recent SBAH excavation threatened by exposure and its proximity to al-Jimjmah. It is separated from the Amran Hill landscape by a modern road.

Sub-Areas of Predominantly Modern Structures for Intervention

***Future Visitor Center Sub-Area* (NH05 and NM81)**
Located across the Hawliyah Canal outside of the Central Administration Area, this large plot of government-owned land east of Marduk Gate is designated for future development as Babylon's principal visitor center.

***Inspectorate Sub-Area* (SM53-68 and SM78-79)**
The SBAH Babil Inspectorate offices, administering all SBAH concerns within Babil Province, are located here along with storage facilities and several employee residences.

***Greek Theatre Sub-Area* (NH06-07; NM09-24; NM53-54; NM67; NM79-80 and NM83-84)**
Grouped by proximity and association with the Babylon Festival, the reconstructed Greek Theatre, the partially ruined tourist village (commercial structures) and adjoining parking lot constitute this sub-area.

***Museums Sub-Area* (SM13; NM27-44; NM70-73; and NM86)**
Proximity and former use unify this sub-area which includes the Nebuchadnezzar Museum, the abandoned Babylon Casino and Hammurabi Museum, public bathrooms, an excavation house, parking lots, and modern buildings in various states of decay (See *BM15, 'Proposed Museums Sub-Area Interventions'* map).

***Conference Center Sub-Area* (SM15-19; SM27; SM29-36; and SM50-51)**
Like the former palace of Saddam Hussein and the Greek Theatre, authority over this sub-area is contested as the Conference Center facilities are maintained by the Babil Governorate. Built to house support services for Saddam Hussein's palace and the Babylon Festival, some Conference Center facilities currently function as accommodation and event venues.

***Saddam Palace Sub-Area* (NM46-48; NM52; NM55-57; and NM74)**
While the former palace of Saddam Hussein will remain vacant in the near term, some of its support buildings are currently being reused as an Iraqi police station and house utilities systems for the Babylon Conference Center and palace.

Sinjar Village Sub-Area and al-Jimjmah Sub-Area
The BSMP recommends long-term planning to protect the archaeological remains beneath and around these villages while upgrading the inhabitants' quality of life through incentive programs. In any event, both villages are likely to host visitor services such as coffee shops, restaurants, and guesthouses. Attracting visitors will inevitably put the site at greater risk from encroachments in these sub-areas unless local government can firmly and equitably enforce the land zoning and regulations for the site boundary and buffer zones.

Sub-Areas of Natural Resources for Preservation

Shatt al-Hillah Riverbank Sub-Area
Bisecting Babylon, the river links varied eco-systems supporting habitats for large populations of non-migratory and migratory birds, fish, amphibian, and mammal species, in addition to hosting traditional rural activities such as fishing, boating, and livestock grazing.

***Lake Saddam Sub-Area* (NM45 and NM76)**
An artificial lake at the terminus of the Hawliyah Canal, Lake Saddam is habitat for numerous plants and animals, including a threatened duck species.[39]

***High grass Sub-Area* (NM06; NM65-66; and NM77-78)**
Pockets of high grass and other vegetation have flourished north of the palace area thanks to the relative absence of visitors, providing habitat to a variety of animals.

***Lake Tammuz Sub-Area* (SM92-93)**
The artificial Lake Tammuz, at the south end of the Hawliyah Canal, is larger than Lake Saddam yet hosts less variety of fauna because of its proximity to roads and human settlements where hunting and fishing are common.[40]

Future Nissan Park Sub-Area
Bounded by the route of the subterranean pipelines on the west, the artificial Mount Nissan, Babil Canal, and archaeological mounds of the outer city wall, a new public fitness park is proposed around Lake Nissan at the southeast corner of Babylon.

Al-Furat Fisheries
A government-operated commercial enterprise comprising 13 artificial lakes for fish breeding two kilometers away from Babylon, the Furat Fisheries is a habitat for thousands of birds.

39 Nature Iraq, "The Future of Babylon Project, Biodiversity Baseline Study" (commissioned by WMF, 2011), 19-23.
40 Ibid., 27-29.

Babylon's Archaeological Potential

(See *BM01, 'Archaeology of Babylon'* map)

Despite the scale of previous excavations, most of Babylon has yet to be investigated. However, the archaeological remains in parts of the Neo-Babylonian core have suffered major disruptions, from railway lines to military camp infrastructure. In addition, remains from the Old Babylonian, Kassite, and Middle Babylonian periods are inaccessible owing to the depth of intervening Neo-Babylonian deposits and the high water table.

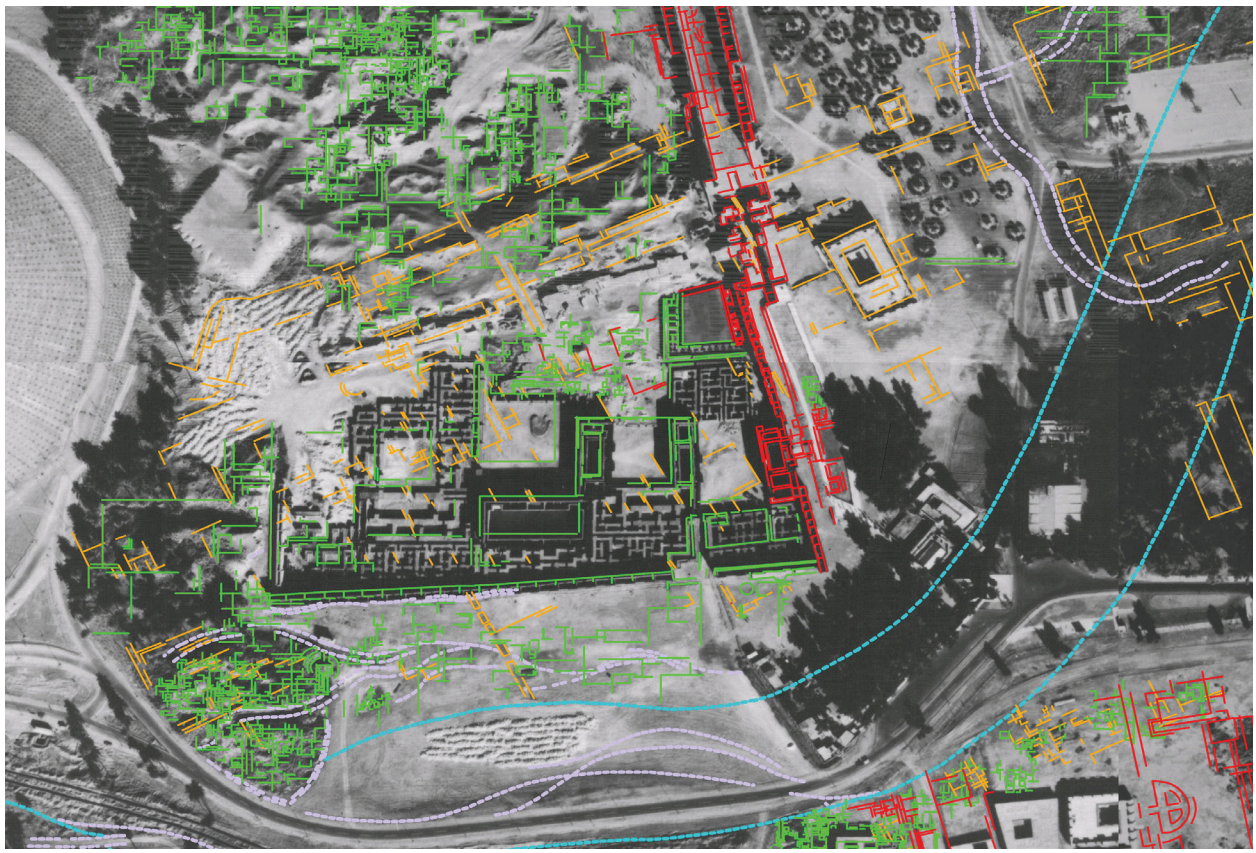
The more accessible Achaemenid, Seleucid, Parthian, Sassanian, and Islamic remains have received less attention than those of the Neo-Babylonian period. Remote-sensing work by the Centro Ricerche Archeologiche e Scavi di'Torino (CRAST) has revealed sub-surface street plans and changes in watercourses, data that would richly serve future excavation planning.

Although most of ancient Babylon lies underground, large excavated areas were left exposed to the elements, many dating to Koldewey's work, others to the Babylon Festival. Some of the exposed remains are overgrown and eroding lumps of earthen masonry. Larger excavated sites at Esagila Temple, the Northern Palace, and the Summer Palace feature larger remnants of fired and mud-brick structures.

These exposed brick elements present urgent conservation and documentation issues. Addressing them as part of the BSMP is a main concern and archaeological investigations are, for now, a secondary priority. Nonetheless, the SBAH is adamant that future explorations be taken into account and guidelines established for planning purposes. Excavation priorities applicable throughout the country are as follows:



Unexcavated archaeological mounds at Merkes, central Babylon with Mount Nissan in the distance.



An aerial image of the Southern Palace and its context, where remote-sensing analysis indicates layers of sub-surface street plans and changes in watercourses.

- Archaeological sites under imminent threat from modern development (such as roads, pipelines, and dams) should first be subject to salvage excavations.
- Where natural elements or events threaten to destroy archaeological stratigraphy (changes in river courses and erosion) excavations should be conducted.
- Salvage excavations should be conducted to prevent looting at endangered sites.
- Further investigations should be conducted to clarify the historic timeline of previously excavated archaeological sites for presentation to the public and for scientific understanding.

The SBAH compiled a shortlist of potential excavation topics for future scientific study and to improve the visitor experience at Babylon. New excavations should be determined through systematic risk assessments and further investigation based on SBAH priorities.[41] Topics include:

1. Determine the location of key features and overall city plan of Nebuchadnezzar's Neo-Babylonian city by continuing Iraqi and international investigations initiated by Robert Koldewey up to preparations associated with the Revival of Babylon project in the 1970s.
2. Verify the information found in cuneiform and other historic texts addressing the locations and structure of religious centers such as Esagila Temple and the House of Akitu, a temple outside of the city used for the New Year festival.
3. Conduct archaeological survey for landmarks described in religious documents (i.e. Quran, Bible, and Torah) and the writings of early historians and travelers.
4. Complete excavations along the Processional Way and undertake explorations along the main passages from city gates where important buildings and complexes were concentrated.

41 WMF interviews with Eman Mohsen, 2013.

Protecting and Conserving Babylon

Late twentieth-century reconstructions severely damaged Babylon's historic remains. Correcting their condition demands major decisions and efforts, based on an assessment of the value and impact of past interventions and the limits and/or possibilities of local capacity. The SBAH administration suffers a shortage of financing and skills. To address administrative shortcomings, the BSMP proposes a new managerial structure with a dedicated and trained conservation staff backed by a Babylon Site Manager. The SBAH must invest in staffing conservationists and restoration architects while assigning funds for training aimed at implementing preservation policies. Tertiary stakeholders can help with training, but the SBAH and its partners in government must ensure adequate funding.

Owing to a policy of doing nothing rather than something expensive or possibly wrong, the exposed archaeology and reconstructions have been neglected and their survival placed at risk. Routine maintenance at Babylon has never been planned or budgeted, nor a competent staff assigned to these preservation tasks. The conservation department outlined in the BSMP would be responsible for routine maintenance. The SBAH must allocate funds to cover maintenance costs based on annual and emergency recommendations and scheduling developed by the conservation department in consultation with the Babylon Site Manager.



Installation of crack monitors on Ishtar Gate's south façade.



Installing scaffolding to shore up Nabu-sha-Hare Temple ceilings.



Testing conservation interventions on Ishtar Gate reliefs.



Excavating the Babylon Lion's foundations prior to repairs.



Structural bracing to prevent collapse at Ishtar Temple.

In 2010 when WMF began conservation efforts, the SBAH still regarded the site as they did in the 1980s, favoring full reconstruction of all monuments. In formulating a conservation philosophy for the BSMP, the SBAH revised this view and now supports leaving monuments in a ruined or partially ruined state for interpretation and presentation. Where modern interventions compromise the structure's integrity and/or interfere with the site's preservation, they will be removed.

This section features a preliminary assessment of Babylon's conservation challenges and opportunities alongside guiding principles for intervention. It explains the ongoing intervention process led by WMF at priority monuments and provides a framework for an approach designed to preserve Babylon and restore a sense of authenticity. Monument-specific case studies illustrate the methodology for determining interventions to protect and conserve Babylon. The site's preservation plan will change and grow to address new studies and demands as resource-specific conservation manuals and a comprehensive plan are developed over the next two years.

Guiding Principles for Protection and Conservation

Methodologies maintaining international principles and standards will ensure consistent and appropriate site protection and conservation.[42] Given the overall significance and character-defining features of the site, the general guiding principles for protection and conservation intervention at Babylon are as follows:

- Conservation and architecture work will be undertaken only when adequate documentation has been collected and prepared for each monument. Scientifically conducted condition surveys and assessments will determine intervention strategies.
- The preservation strategy for any single monument must reflect its context and the possible conservation and architectural outcomes of the structures around it.
- A specific vocabulary of conservation techniques and architectural solutions should be defined to reflect a fundamental style of intervention matching international standards. This process will set standards for future interventions, beyond the Future of Babylon project.
- Pilot interventions supported by a period of testing will be undertaken to yield the data required for effective intervention strategies.
- Conservation of original materials is a priority for fired brick structures; their inclusion and influence will define all final preservation strategies. For mud brick, in-kind replacement is possible if in keeping with the original spirit and composition of historic material.
- Replacement material in fired brick structures will be distinct from original fabric in both treatment and documentation. For mud-brick structures documentation is sufficient.
- Replacement materials will be chosen to meet the criteria of compatibility, durability, aesthetics, and ease of maintenance in consideration of contemporary conditions in Iraq.
- All interventions will be reversible and without damage to the original fabric.
- Regardless of their condition, exposed ruins will be documented, cleaned, and stabilized. Following a principled assessment, sites will be either reburied or, if of high interpretative value, conserved and presented to the public.
- The presentation of restored structures is integral to their conservation. All new elements for protection and presentation to the public must adhere to consistent standards while reflecting simplicity and neutrality. These elements will be discreet (material, form, and color) with respect to the period and appearance of historical remains, and always secondary to the original fabric.
- Post-conservation maintenance manuals, including policies for project sites, will be produced for each monument, followed, and updated accordingly. The SBAH must regularly inspect restored monuments and perform routine maintenance to ensure the long-term sustainability of conservation work.
- Improving the capacity of the SBAH and Iraqi consultants engaged in restoration is a fundamental component of all site work. Training programs will provide direction through classroom guidance, visits to similar sites and on-site modules.

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42 Primary international treaties referenced in assembling this section: ICOMOS, *International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter 1964),* www.icomos.org/charters/venice_e.pdf; ICOMOS, *The Declaration of San Antonio,* 27-30, March 1996, http://www.icomos.org/en/pub/179-articles-en-francais/ressources/charters-and-standards/188-the-declaration-of-san-antonio; and ICOMOS, *The Burra Charter,* (The Australia ICOMOS, Charter for Places of Cultural Significance) 26 November 1999, http://australia.icomos.org/wp-content/uploads/BURRA-CHARTER-1999_charter-only.pdf.

Description of Building Materials

Babylon comprises diverse structural typologies and materials that generally represent two periods: Neo-Babylonian (626–539BC) and twentieth-century interventions. Neo-Babylonian materials are earthen, principally fired brick and mud brick and mud plasters as well as bitumen and gypsum-based mortars and plasters. Most twentieth-century interventions are intrusive cement-based mortars and plasters, fired brick and/or gypsum blocks. Small-scale repairs include nails and chicken wire coated in thick cement and gypsum-based renders. These materials, used in reconstructed monuments, complicate conservation strategies. The cement and cement blends are difficult to remove or replace without severely damaging original masonry. The site's conservation and interpretation nonetheless demands the harmonious treatment of structures featuring these diverse materials.

Mud brick (unbaked mud brick)



Mud brick (adobe, *leben* in Arabic) were made from soil containing clay (phyllosilicates), sand and aggregates, mixed with water and organic materials such as straw, bone, and animal dung. The quadratic, weight-bearing, standard-sized bricks were cured without a baking process. Soil properties, the curing process, effects of additives and the method of fabrication determined the brick's strength. Mud-brick walls decay rapidly, especially from rain and weathering, so layers of sacrificial mud or gypsum renders and coatings were generally applied.[43]

Examples of mud-brick construction can be found in the excavated remains of reconstructed buildings in the Temple Sub-Area, including one of Babylon's best preserved sites, Nabu-sha-Hare Temple. The structure is mainly Neo-Babylonian or Late-Assyrian, but modern masonry infill and wall reconstruction was added (both mud brick and fired brick). The inner city wall between the northern and southern palaces is a massive Neo-Babylonian structure of mud brick reinforced partly with modern mud brick (unbaked). The reconstructed Ishtar and Ninmah temples also include modern mud brick.

Fired brick (baked brick)



The basic ingredient of fired brick (*tabouq,* Arabic) is a clay-based mixture composed of mainly silica and alumina. The clay may be from soft and plastic surface deposits or firmer subsoil deposits. Like mud brick (unbaked), the clay was pressed into moulds but additionally baked in a kiln into a stronger, ceramic building material. The bricks' components, the drying procedure, baking temperature, and pore structure affected their strength.

The remains of the Northern and Southern palaces that dominate the Palaces Sub-Area are primarily fired brick. While the Southern Palace was partially reconstructed using modern fired brick superimposed on older fired brick structures, the Northern Place was left in ruins. In the Neo-Babylonian period many bricks were stamped with cuneiform inscriptions, a treatment imitated by Saddam Hussein.

The excavated Ishtar Gate found on site today is composed entirely of fired brick. During Nebuchadnezzar II's second reconstruction now in Berlin, glazes were applied to exposed surfaces. The Gate, like the Southern Palace, suffered irreversible interventions during the 1980s, when modern fired bricks were added.

43 Garip Önder Özen, "Comparison of Elastic and Inelastic Behaviour of Historic Masonry Structures at the Low Load Levels" (master's thesis, Middle East Technical University, 2006).



Bitumen

Bitumen was an important building material in the Babylonian/Neo-Babylonian periods used to reduce humidity migration in masonry, as the primary ingredient in an asphalt brick mortar, and mixed with ground limestone, aggregates, sand or similar materials used as a water barrier under-surfacing floors or pavements. Depending on the use, a number of additives such as earth, bones, graphite, eggshell, etc. gave the bitumen special qualities. The substance was produced in both liquid and solid forms, corresponding roughly to tar and pitch. Bitumen originated from a lake near Hit, at the southern end of the kingdom.[44]

Most large, fired-brick masonry structures at Babylon show traces of bitumen used as a mortar, often in a melted form. Bitumen was used as a water barrier in flooring in the courtyard of Nabu-sha-Hare Temple and between joints in the Processional Way. It appeared as a plaster coat, on the *kisu* of the temples, to protect altars in and out of the temples and as a coating decoration in the courtyards of temples.

The SBAH applied new coatings of bitumen as water-proofing at several sites including Ninmah Temple, with unsatisfactory results.



Gypsum

Gypsum appeared in three construction components at Babylon: bed mortar, final plaster coats, and as a thin wash. In masonry construction a bed mortar of earth and gypsum was applied every five to nine horizontal lays of brick. Like bitumen, the bed mortar was used to reduce humidity, but also to help align masonry lays. Gypsum was an ideal wall coating because it smoothed irregular masonry. As a surface wash treatment it received painted decoration that brightened internal spaces.[45]

In the Palaces Sub-Area, exposed cuts in the masonry of the inner city wall show gypsum was used as a bed mortar. SBAH excavations also uncovered gypsum plaster coats that have since eroded away. There is no current evidence of gypsum applied as a thin wash on site, however traces of the delicate material were probably found during 1979-80 excavations at Nabu-sha-Hare Temple that have since disappeared.

Gypsum was used in the modern reconstructions in the Temples Sub-Area as an interior wall plaster. Copious amounts (in some cases up to 15cm thick) applied as a wall coating at Nabu-sha-Hare Temple weigh heavily on the masonry, threatening its collapse.



Wood timber

Wood mainly appears in the roof structure of modern reconstructions of Neo-Babylonian architecture built between the 1960s and 1990s. Typically seen as cross-beams in ceilings, small-diameter wood timber of inferior quality was used. Historically, wood beams would be soaked in saline solutions and coated with bitumen for protection from insect infestation, where ultimately their preservation depended on diligent, routine maintenance programs.

Today, most of the wood beams inside the reconstructed temples and houses found at Babylon are failing because there is no regular treatment program for termites. The most acute case resulted in the collapse of several ceilings at Ninmah Temple and Nabu-sha-Hare Temple.

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44 H. W. F. Saggs, *Everyday Life in Babylonia and Assyria* (Assyrian International News Agency, 1965) http://www.aina.org/books/eliba/eliba.htm

45 R. Koldewey, *The Excavations at Babylon* (London: Macmillan, 1914), 291, 299.

Reed matting

Mats of reeds (*asira*, Arabic) woven from local vegetal fibres and used within mud brick masonry can be found every 6 to 8 lays of bricks in a thick crosshatched pattern at the Summer Palace. This common technique of construction, used as a horizontal 'chainage,' strengthened masonry and reduced ground differential settlements. Reed mats were also used as a finishing layer in timbered and earth ceilings. None of the original ceiling matting materials survive, but it was used in the modern reconstructions in the Temples Sub-Area and at Ninmah Temple.



Modern fired brick

Most of the 1980s reconstructed masonry was made of compressed and extruded bricks of calcium-silicate. Dried and fired in a kiln, they form hard, dense bricks but are perforated to reduce weight. While the historic fired bricks are reddish, the modern ones are typically yellow-beige, probably due to the higher lime content and firing process. Modern fired bricks were extensively used in the 1980s to rebuild the Southern Palace and Greek Theatre, and in underpinning repairs and retaining walls at Ishtar Gate. In the temple reconstructions they are often coated with a mud render to match the original brick masonry. Modern fired bricks were also used in the modern commercial facilities built on site.





Modern gypsum blocks (thermostone)

In some cases, 1980s masonry included large, lightweight gypsum blocks (*thermostone*) in combination with other types of materials. Gypsum blocks were used as an underpinning repair at Nabu-sha-Hare Temple and on top of Ishtar Gate and in many Babylon Festival-related buildings.



Portland cement

Portland cement, a cheap building material, was liberally applied in the 1980s as a binder in mortar, plaster, and concrete. It reappeared in 1990s repairs on buildings as plasters to save time and money, often reinforced with chicken wire and nails. The prevalence of Portland Cement complicates preservation efforts at Babylon, because it constrains moisture migration and fosters salt deposition.



Concrete

Utilized in the 1980s, concrete (cement, aggregate and water) poses conservation challenges for adjacent archaeological layers. Concrete tiled sidewalks and pavements encircle reconstructed temples and are found throughout the archaeological areas; concrete pavement slabs, 25cm in thickness, sometimes reinforced with rebar are found at Ishtar Gate. In combination with modern fired brick, quantities of concrete were applied to the top of the inner city wall and used in building foundations dating to this period.



Steel

Incorporated into poured concrete, steel rebar and beams are found as reinforcement throughout modern buildings at Babylon. Also it was used in Neo-Babylonian reconstructions in limited cases, its usage most pronounced at the Southern Palace and Greek Theatre.



Urgent measures to prevent collapse constitute most conservation actions to date.

Defining Conservation and Restoration Strategies

Effective intervention strategies rely on precise condition assessments that define pathologies, decay processes, and causes of damage. Comprehensive sets of architectural drawings and condition surveys are being assembled to determine cause and effect for each priority site. Aside from guiding restoration and other interventions, these form the basis for mapping condition assessments.

Comprehensive drawings have thus far been completed for Nabu-sha-Hare Temple, the inner city wall between the palaces, and the Ishtar Gate. Assembled by the Babylon Documentation Work Group, they provide detailed documentation of original construction and subsequent alteration. This information forms the basis for intervention strategies. They also document conditions at a given time, help to monitor change, and provide important archival information.

A scientific, internationally-accepted management approach will define the sequence of conservation and restoration activities at Babylon's historic monuments by: 1) developing comprehensive documentation and surveys 2) preparing the environment 3) monitoring conditions and 4) performing detailed condition assessments and symptom analyses. These steps have either been taken or initiated at Ishtar Gate, Nabu-sha-Hare Temple, and the inner city wall. In the future similar steps will be taken at Ninmah Temple and Ishtar Temple.

Comprehensive documentation and survey

This process involves assembling archives, compiling building and topographic surveys, and locating all former conservation or reconstruction-related documents. Complete sets of existing, and/or in-progress and proposed architectural drawings (comprehensive plans, elevations, sections, and details) and graphic drawings (traditional site surveys, computerized CAD-based drawings or 3D site survey scans) are integral to the restoration and conservation process.

Archives safeguard the history of an archaeological site, illustrating the cycles of discovery and intervention. Translations of ancient tablets and inscriptions, books and publications, historic illustrations and plans, surveys, photographs and drawings all serve to gauge the impact of time and human factors on a given monument. The built environment is also an important archive. Babylon's traditional mud-brick and fired-brick building technologies are a legacy to be documented through research and field-based investigations.

Preparing and stabilizing the environment

Alongside documentation and survey, the monument environment must be stabilized to prevent further decay and prepare for interventions. The process is as follows:[46]

- Improve security by installing construction site fencing during the intervention phase to restrict access. In the case of temples, erect temporary gates at entrances that cause no harm to original fabric.
- Clean the site by removing unnecessary modern intrusions, collecting garbage and deracinating vegetation (removing roots and treating the soil) to avoid further damage from overgrowth in the vicinity of historic remains.
- Halt or reduce sources of water damage. This may require changing drainage patterns and in extreme cases topographic re-grading by re-excavating where modern backfills have been deposited and historical sections of the construction reburied.
- Stabilize architectural elements that risk collapse through bracing and shoring.
- Repair damage from burrows and prevent other impact caused by animals. The site management plan defines regulations for the control of livestock and other animals.



Traditional survey measurements remain an important documentation tool.



Team members train with newly purchased documentation equipment.



Babylon Documentation Work Group members review laser scanning data in the new project documentation office.

46 Mahmoud Bendakir, "Babylon Archaeological Site Practical Training Workshop, Third Mission Report" (commissioned by WMF, November 2011), 45-107.



Overgrowth being removed from Nabu-sha-Hare Temple.



Removing steel fence posts to reduce modern intrusions.



Documenting a collapsed portion of the inner city walls.



The same wall after emergency shoring.



Abandoned 1980s buildings cover the site.



Derelict recent buildings are removed from archaeological areas wherever possible.

Monitoring conditions

The regular collection of statistical data will allow for interpretation of the decay processes affecting historic structures, informing decisions regarding priorities, methods, and treatments. WMF has initiated a number of investigations, some standard procedures in monument conservation, others tailored to Babylon, including the focus on moisture pathologies observed in the majority of resources.[47] The following steps have been taken:

- Information on historic and current climate patterns was gathered beginning in 2012 to assess the implications of weathering.[48] WMF installed a meteorological station to support the SBAH's monitoring program of daily measurements and data analysis.
- Documented water table levels show fluctuations that affect above and below-ground archaeological remains. As of 2013 water levels of the Shatt al-Hillah and man-made water bodies were measured twice monthly, as was the water table at pre-existing wells and those drilled for the hydrology study. This data, combined with the hydrological study by CEB, aids our understanding of the interaction between river levels, the lakes, groundwater flow, and rainfall.



New weather station feeds meteorological data directly to the documentation office.

- Beginning in 2013, masonry humidity has been systematically measured through moisture meters and recorded for comparison with meteorological data and the fluctuation of the water table. These tests, performed by the SBAH, in addition to studies of salt levels and water quality conducted by CEB, will yield evidence of water migration and distribution that can improve the SBAH's ability to handle erosion problems.
- Since 2011, prominent structural cracks have been monitored monthly to study seasonal movements in masonry. Analyzing the cracks' evolution sheds light on root causes (often soil settlement and erosion) and helps identify appropriate interventions.
- In 2012 Babil University, CEB, was engaged to conduct compression tests on building materials which further supported conservation efforts. This was followed in 2013 by soil analysis and an assessment of building conditions and components including causes of masonry failure.

SBAH and WMF are exploring an expanded monitoring program of physical, natural, and environmental conditions based on these preliminary studies. A site laboratory would facilitate a monitoring and data analysis program, including a priority study of representative building materials that will help determine problems while yielding formulas for manufacturing new mud bricks and fired bricks, and suitable compositions for mortars and plasters. At least three parallel studies should be conducted to: 1) identify the basic characteristics of building materials through density and compression stress tests 2) test bricks for porosity, granulometry, bulk density, absorption levels, salts measurement, and to track humidity migration and 3) chemically analyze brick, mortars, and plasters.[49]

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47 Mahmoud Bendakir, "Babylon Archaeological Site Condition Assessment, April Mission Report" (commissioned by WMF, June 2010), 104-107.

48 Consulting Engineering Bureau (CEB) of Baghdad University began compiling this data as part of their hydrology study.

49 Brian Ridout, "Moisture Monitoring in Earthen Structures" *An Overview of Research in Earthen Architecture Conservation, Terra Literature Review,* ed. Erica Avrami (Los Angeles: The Getty Conservation Institute, 2008), 62-68.

Developing an Intervention Plan

Completing the aforementioned scientific steps based on detailed condition assessments and symptom analyses provides a 'technical passport', i.e. the background and detailed descriptions necessary to formulate a conservation strategy adhering to internationally accepted standards. This intervention plan will include a clear set of actions, bills of quantity, staffing rosters, and scheduling.

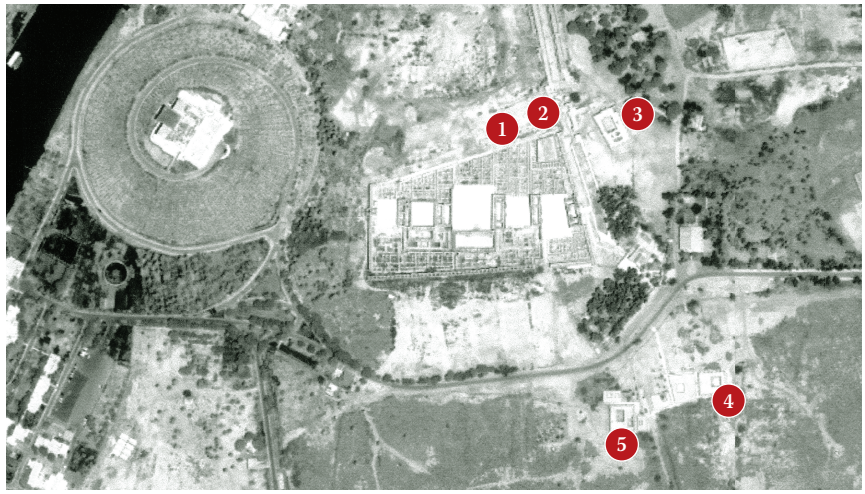
Selection of Priority Sites

As part of the Future of Babylon's early planning process, members of the SBAH prioritized five sites for general maintenance and conservation actions with Ishtar Gate, Nabu-sha-Hare Temple, and the inner city walls between the palaces classified as highest priority.[50] All are standing monuments with substantial amounts of original fabric that have preserved their authenticity and integrity despite the 1980s interventions and subsequent years of neglect. Ninmah and Ishtar temples were also selected and preventative conservation measures undertaken. These present less integrity and are mostly reconstructed using poor materials, techniques, and standards.

Founded on background research, investigation, assessment, and stabilization at Ishtar Gate and Nabu-sha-Hare Temple has begun, while at the inner city walls stabilization was undertaken. These sites feature challenges common throughout Babylon, making them ideal classrooms for learning skills that can be replicated at other locations at Babylon and elsewhere in Iraq.

The sequence of restoration activities at these monuments changed in the course of the intervention process. Initial efforts focused on defining a procedure of interventions at Nabu-sha-Hare Temple, a complicated but model case for similar actions at other earthen architecture temples. The lack of documentation regarding modern reconstructions presents problems for choosing conservation procedures, and further investigation of the monument is required.

With the Babylon Documentation Work Group's completion of architectural drawings for Ishtar Gate, the path of conservation action is clear. This monument is better documented and contains less 1980s interventions. Restoring this renowned site enhances public relations benefits and may make further funding and support for the Future of Babylon project possible. Brief summaries of the accomplishments at Ishtar Gate and Nabu-sha-Hare Temple illustrate the Future of Babylon project's intervention approach and are as follows:



1 Inner City Walls between the palaces
2 Ishtar Gate
3 Ninmah Temple
4 Ishtar Temple
5 Nabu-sha-Hare Temple

Aerial view of Babylon's Central Administration Area and the five priority sites.

50 World Monuments Fund, "Meeting with Iraq State Board of Antiquities and Heritage Regarding the Development of the Babylon Site Management Plan, The Future of Babylon Project" (mission minutes, New York City, NY June 1–June 5, 2009).



Removing concrete paving at Ishtar Gate's inner walls to reduce damp in the lower masonry. The central drain and adjoining path will remain until installation of a new drainage system and walkway.

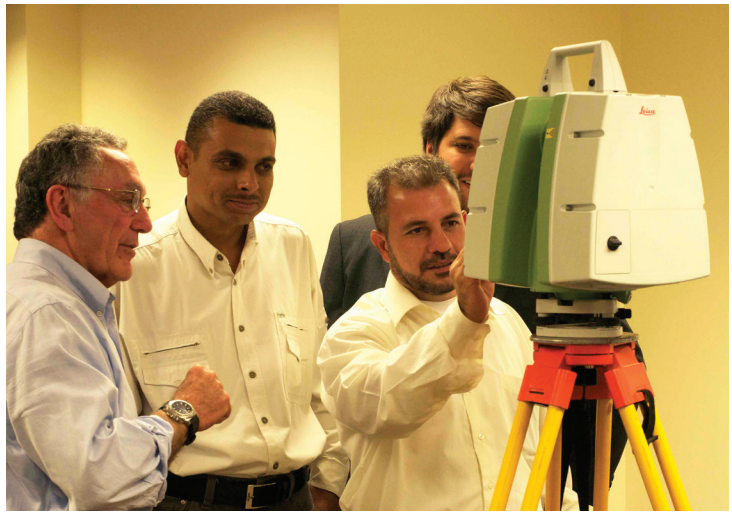
Ishtar Gate

Ishtar Gate is considered Babylon's most important monument due to its history and the amount of in-situ fabric. Despite twentieth-century reconstruction activities, it has few known serious structural problems. Owing to its fame, material composition (fired brick), and as a result of initial condition assessments, the Ishtar Gate was chosen from the priority sites by the SBAH as the first monument to undergo full conservation.

Documentation and survey

Unlike other priority sites, Ishtar Gate is relatively well-documented with background history. Robert Koldewey's excavation reports (from the Deutsche Orient-Gesellschaft archives, Berlin), archival photos and some conceptual drawings by Italian architects in the mid-1980s constitute the baseline data on this monument. Comprehensive restoration reports from the 1980s and subsequent work, including basic architectural drawings are however missing. Interviews with retired SBAH archaeologists involved in the reconstructions, several SBAH reports and back issues of *Sumer* filled some gaps in the monument's recent past.

Through a Kress Foundation grant in 2010, World Monuments Fund employed CyArk, a non-profit California-based digital documentation company, to complete a three-dimensional laser scan of the Ishtar Gate complex. Working with members of the SBAH, two CyArk technicians completed a scan of the gate in four days. At its offices in Oakland, CyArk provided training for members of the Babylon Documentation Work Group in processing software for the later creation back in Iraq of AutoCAD drawings. The drawings, detailed to the level of individual masonry units, represent the first comprehensive documentation set of Ishtar Gate.



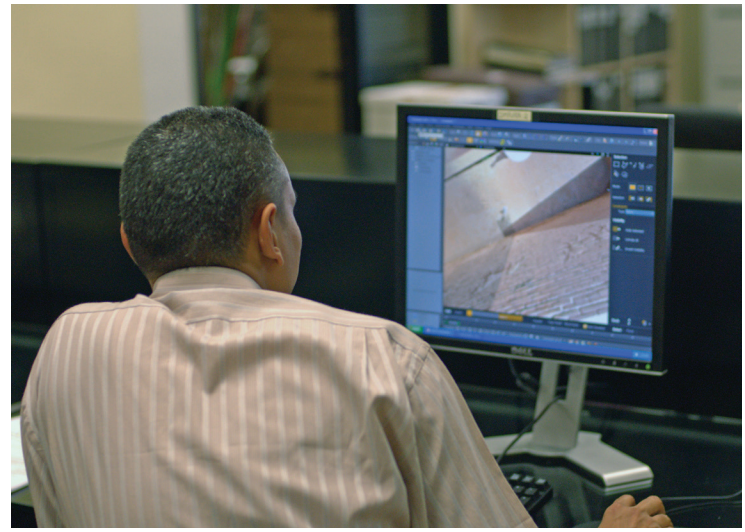
SBAH Documentation Work Group during laser scanning training at CyArk's offices.



Concrete floor slabs being isolated to reduce vibration prior to removal.



Tons of concrete flooring were removed from Ishtar Gate.



SBAH engineer processes scanning data into drawings.



Hand tools and a cutting saw were used to remove flooring.



Modern backfill was excavated to determine masonry condition and water table levels.

Preparing and stabilizing the environment

An intensive site clean-up involved the removal of trash, vegetation, and remnants of modern infrastructure, including electrical wiring for abandoned security cameras, cement fence posts, and broken masonry. Modern drainage channels were cleared of silt to improve rainwater discharge. Truckloads of garbage were removed from the cisterns. It was discovered that these lacked waterproof bottoms, and consequently concentrate rainwater flow beneath the gate, presenting further conservation problems.

Although the Gate is mainly stable, some architectural elements required temporary shoring with wood framing and buttressing. A large stand-alone, column-like fired-mud brick structure on a mud-brick base nearing collapse was braced. A failing section of the Gate's massive fired-brick walls was also stabilized with wood framing and buttressing.

Monitoring conditions

Since 2011, four monitors installed in at a vertical crack on the south facade of the Gate's western wing are checked monthly to track its movement and determine the nature and severity of the pathology.[51] Part of the cement flooring was removed and soundings made to identify water table levels. Manmade water bodies and wells are also being monitored in preparation of conservation plan development and visitor presentation designs. A hand held moisture measure (a Protimeter humidity device with pins and probes) is being used monthly to monitor changes in humidity levels as the Gate's cement flooring is removed. The results will help track efforts to lower groundwater penetration into the masonry facades.

Condition assessment and analysis

Fundamental condition assessments were made from 2010 to 2013 consisting of detailed notations on a set of CAD documentation drawings. This process highlighted a number of decay factors affecting various monuments.



Temporary bracing on a masonry column at Ishtar Gate.

For example, the Ishtar Gate sits lower than the surroundings and the water table is just over a meter beneath the flooring, meaning well over the foundation of the masonry facades. Rising damp and humidity exchange between the soil and wall surfaces destroyed the lower courses of masonry. Evaporation provokes hydration and crystallization of dissolved salts inside fired bricks, breaking them down. The concrete slab flooring installed in the 1980s obstructed evaporation and aggravated erosion by forcing rising damp into the walls. Two uncontained cisterns, working as discharge wells for the slab surface run off, concentrated rain water drainage beneath the Gate.

Instead of evacuating water from Ishtar Gate, drainage patterns created in the 1980s funnel surface water within the gate's context directly into the backsides of the structure, encouraging water migration deep into the masonry core; dampness, in turn, is visible on the interior façades after rainstorms.

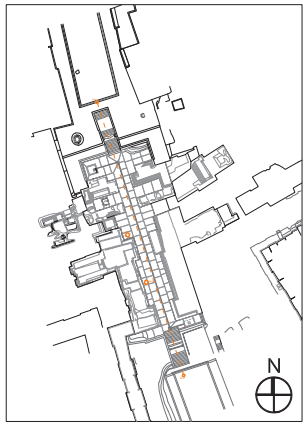
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51 Mahmoud Bendakir, September 2011, 30-39. Saugnac Gauges (G6 gauge) crack monitors were installed in 2011 to measure variations in the opening and rotation of the edges of the crack in a single plane. The gauge was simple to install, durable, and measures with an accuracy of 0.1mm and in rotation 0.1 degree. SBAH staff was trained to install the gauge and collect data for a crack movement model.

Examples of Ishtar Gate Documentation

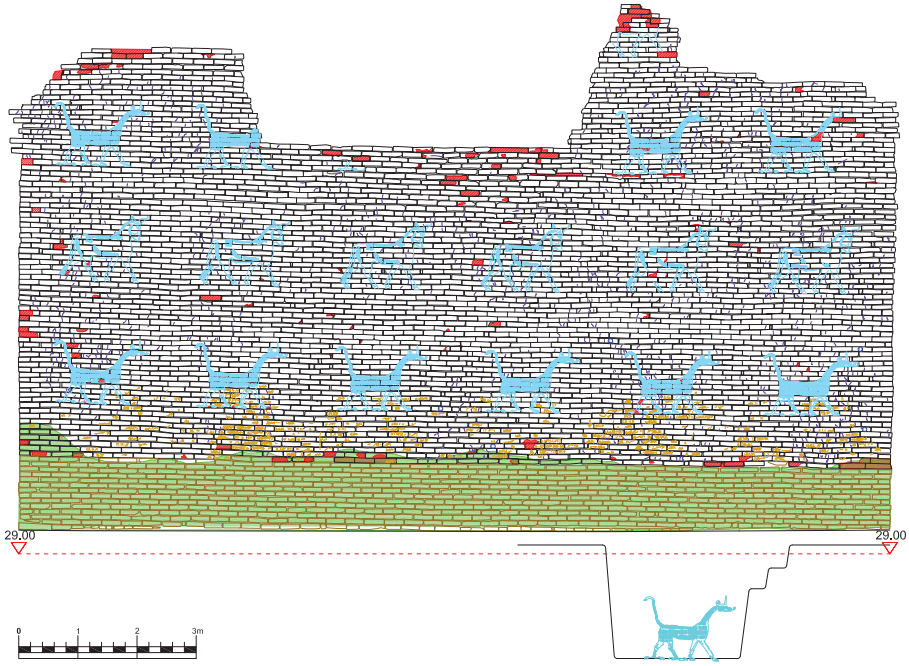
Building on Deutsche Orient-Gesellschaft excavation work and modern condition assessments, this is the first brick-by-brick, detailed architectural drawing set of the monument.

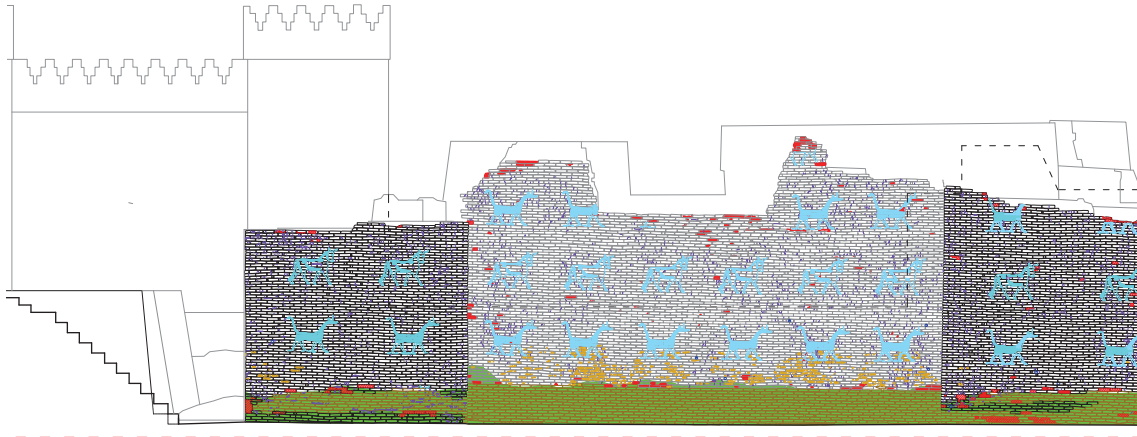
KEY PLAN



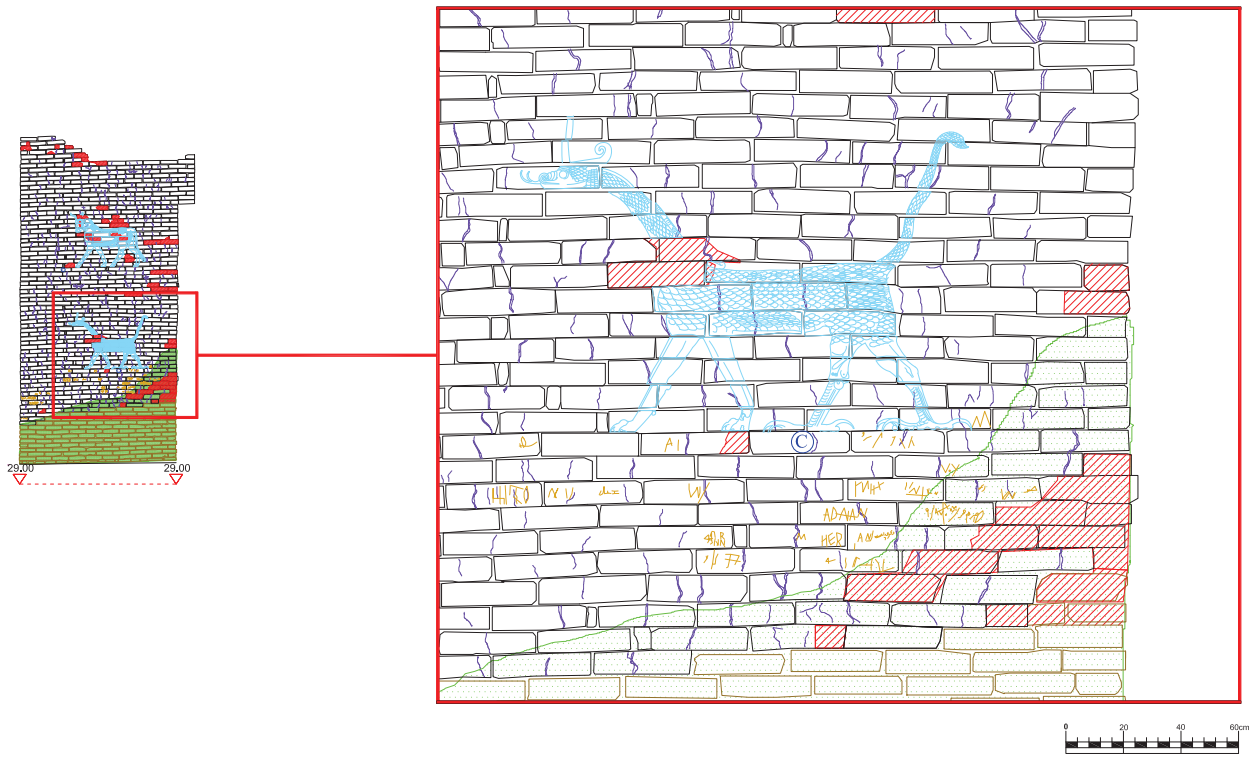
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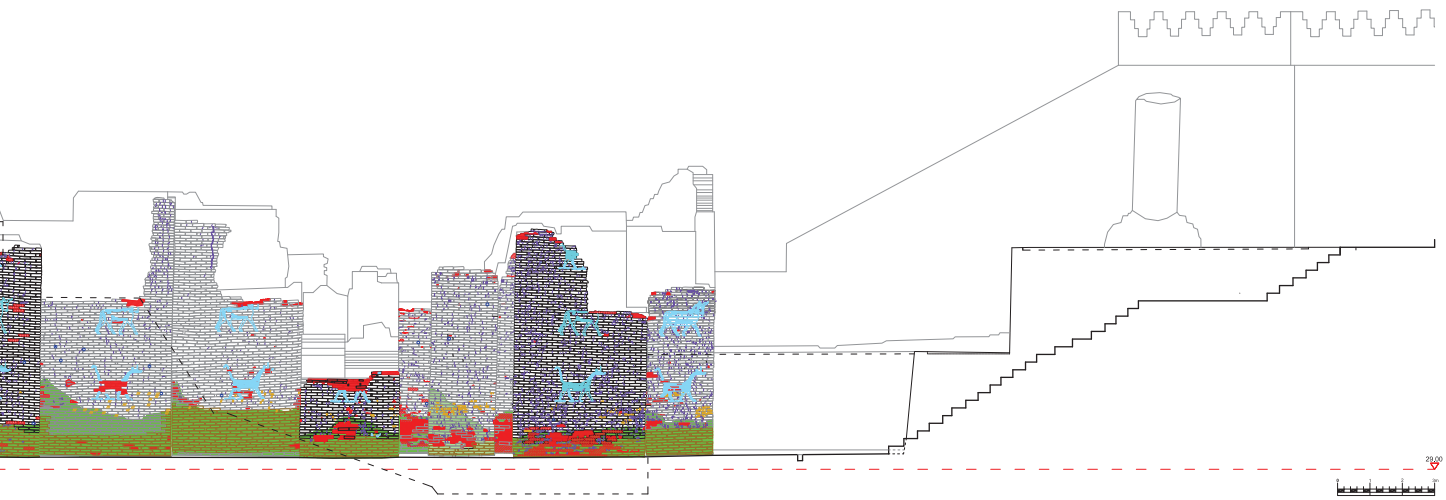
- HISTORIC MASONRY
- ANIMAL RELIEF
- CUNEIFORM STAMP
- GYPSUM
- TAR
- MOISTURE
- CRACK
- MODERN GRAFFITI
- MINOR LOSS (>1-5 CM)
- MEDIUM LOSS (>5-15 CM)
- MAJOR LOSS (>15-32 CM)
- TOTAL LOSS
- NEW MASONRY REPAIR
- CEMENT OR CONCRETE
- BACKGROUND TOPOGRAPHY

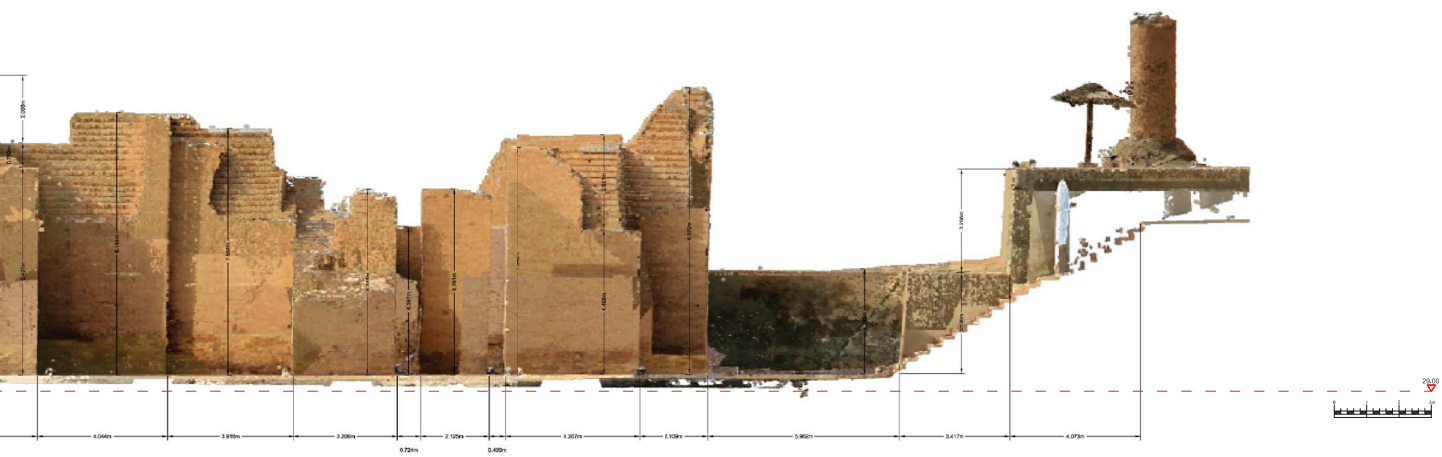







29,00
29,00
0
20
40
60cm


29,00


29,00





A crack down the south façade of Ishtar Gate (above) is an outcome of 1980s infill interventions. Modern drainage directs runoff (left) down Ishtar Gate's façade, eroding reliefs.

Moreover, the fired brick and cement-based mortar infill added to the top of the Gate in the 1980s was meant to shore up archaeological remains and add massing to the overall form. However, capping it with a modern cement-based mortar coating hastened surface weathering by channeling rainwater from the top directly down the structure; concentrated runoff has eroded vertical troughs in the masonry, in some cases damaging animal reliefs.

In addition, during the 1950s and 1980s, infill masonry was laid to underpin areas of substantial loss of historic fired brick from rising damp.[52] This infill consists of incompatible yellow-green fired bricks and a less porous cement mortar which serves to channel moisture through the bricks themselves rather than through the joints. As a result, both original, fired bricks and modern, fired ones are dissolving. As the shallow brick work of the Gate's underpinnings do not reach into the core, removing and replacing these materials presents limited risk to the adjoining historic fabric.[53]

Modern masonry burdens the structure, stressing the historic fabric. At the Southern Palace, the reconstructed outer wall adjoining Ishtar Gate and the fired brick masonry infill behind the Gate have produced dangerous lateral forces and settlement inconsistencies in the less robust historic masonry. The south facade of Ishtar Gate, intact during Koldewey's excavations, now has a large crack from the shearing force that split individual historic fired brick units in half. Monitors indicate stresses from differential settlement were relieved by the initial cracking and movements are now confined to seasonal fluctuations.[54]

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52 WMF interview with Wahbi Abdel Rezzak, 2011. Roberto Parapetti, "Babylon 1978-2008 A Chronicle of Events in the Ancient Site," International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq Sub-Committee on Babylon *National Reports Annex 5* (2008), 5.

53 Northern Ireland Environment Agency (NEIA), Environment and Heritage Services "Masonry Walls, Technical Note No. 45", June 1992, revised August 2003, http://www.doeni.gov.uk/niea/tn45_masonry_walls-2.pdf

54 Lina al-Hakim, "Ishtar Gate, Structural Analysis for Wall S010" (commissioned by WMF, August 2013). An in-depth structural analysis of the large crack in the southern façade was undertaken.

Intervention Strategy for Ishtar Gate

A preliminary intervention strategy for Ishtar Gate was developed to stabilize and protect its environment. Since the water table is the main problem, the strategy involves reducing the impact of rainwater drainage from anterior façades and encouraging evaporation from the water table. Interventions will be further developed in 2013-2014, and will entail the following actions: [55]

1. Removal of the concrete flooring allowing groundwater evaporation and reduction of humidity, which is now migrating through the standing masonry walls composed of fired brick.
2. Re-design of this floor area to develop integrated drainage systems that serve to move water away from Ishtar Gate, this will include constructing definably new bulwarks at the north and south ends.
3. Transformation of discharge cisterns into waterproof reservoirs to collect water and solar-powered pumping systems to move it out of the site.

Once steps are taken to reduce the effects of low level moisture and humidity, and their impacts assessed, a series of conservation architectural activities will begin:

4. Modern fired brick masonry underpinnings will be removed, section by section, and replaced with compatible, traditional materials and mortars. Where appropriate, interventions to facilitate humidity evaporation such as venting will be introduced to the lower courses of the replacement brick.
5. Sub-grade work will reinforce foundations after defining the cause of the large crack in the southern façade. On the façade, grouting and re-pointing will be applied to reinforce the wall, restrict access of moisture, and present a more unified appearance. Using the same techniques minor cracks will also be repaired.
6. Surface damage will be treated, including brick masonry cleaning and mechanical re-attachment, consolidation, grouting and re-pointing will occur where needed.
7. Cement-based mortar capping and modern fired brick infills behind the interior façades will be analyzed to determine plans for alteration, repair or removal.
8. To avoid further deterioration of brick masonry surfaces, a lightweight canopy is proposed to cover the east and west parts of the Ishtar Gate, a subject to be further explored as work continues.
9. Visitor access will be directed/controlled and infrastructure improved with condensed access pathways, lighting, benches, stairs, and interpretation.

55 Thierry Grandin, "Babylon Archaeological Site, October Mission Report" (commissioned by WMF, November 2012), 66–86.



After cleaning down to Nabu-sha-Hare Temple's original courtyard paving, geo-tech fabric was applied and later covered with a layer of sieved soil as temporary protection during conservation activities.

Nabu-sha-Hare Temple

Nabu-sha-Hare Temple is considered one of the most important extant examples of Babylonian temple architecture, with massive, original walls of mud brick and surviving mud plaster coatings. Unearthed in 1978 and 1979 by an Iraqi archaeological mission directed by Danial Ishaq, the process of reconstruction immediately followed led by then Director General of the SOAH Muayad Said Damerji.[56]

Documentation and survey

For such an important and recent find, excavation documentation is scant, consisting of *Sumer* articles, a few photos in publications, an architectural floor plan, several conceptual illustrations, and minor mention in larger topic reports. The Ishtar Gate, excavated 100 years ago, is better documented.

Following CyArk's scan of the building, architectural drawings were produced based on splicing the three-dimensional file into two-dimensional plans, facades, and sections and using them as underlays for AutoCAD drawings. The data provided the first comprehensive set of architectural drawings for Nabu-sha-Hare Temple and enabled an examination of construction techniques used in both the original and reconstructed elements.

Preparing and stabilizing the environment

Before this project began, Nabu-sha-Hare Temple was exposed to the elements and unsecured. A temporary gate was installed, locks placed on the two building entries, and a construction fence set up around the perimeter of the work site.

56 Danial Ishaq, "The Excavations at the Southern Part of the Procession Street and Nabu ša Hare Temple," *Sumer* 41, No. 1-2 (1981), 30-33.

Modern reconstructions and water problems have contributed to Nabu-sha-Hare Temple's decay. Rainwater flowing towards the temple caused extensive damage, compounded by the lack of site maintenance and uncontrolled vegetation growth. The first steps in combating these problems included removing vegetation and plugging a water pipe that had apparently been leaking for years.

After the temple's reconstruction in the early 1980, to counter fears of collapse modern backfill was heaped against the south and west facades, partially reburying the monument in up to 2.5 meters of broken building material and soil. In 2011 approximately 400 cubic meters of modern fill was removed from the sides of the temple in order to further reveal the *kisu* (an elevated platform around or under religious buildings serving structural purposes) and encourage humidity in the interior to evaporate. The modern fired-brick *kisu* follows the foundations of an older structure. A temporary drainage channel and a discharge well were installed parallel to the *kisu* to control rainwater run-off.

Behind the temple, archaeological remains left exposed since Dainal Ishaq's excavations were cleaned and temporarily covered with geo-tech fabric until a final presentation plan for the temple's context is decided.

Evidence suggested that livestock recently sheltered in the open building and the original pavement was covered with several centimeters of dust. The flooring in all internal and courtyard spaces was re-excavated then temporarily recovered with geo-tech fabric and a top layer of sieved protective soil. Years of exposure without maintenance contributed to the loss of most interior structures. Remaining architectural features, such as altars of fired-brick and bitumen mortar, were covered with geo-tech fabric and protected using sandbags left over from Camp Alpha.

Since portions of the roof had collapsed from termite damage, interiors were propped and scaffolding erected in all rooms. Holes in the roof were temporarily covered to prevent rain penetration awaiting an intervention strategy.



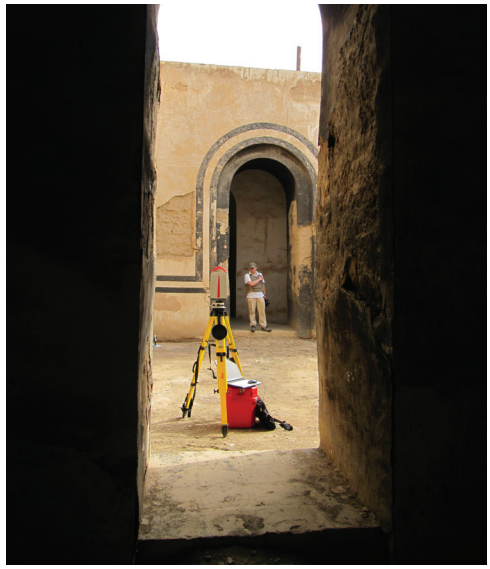
3D view of Nabu-sha-Hare Temple's internal timber ceilings assembled from digital laser scans.



Covering roof holes caused by termite infestation of supporting woodwork.



Internal walls collapsed due to water infiltration.



Laser scanning in progress.



Documentation and assessment of surviving historic wall plasters.



Backfill from the 1990s is removed to reduce humidity in the masonry.



All interior spaces were shored with scaffolding.

Monitoring conditions

The temple suffers primarily from humidity, particularly in walls where historic fired brick is combined with modern reconstruction materials such as modern fired brick, gypsum blocks, and later cement-based repairs and plasters. The decay is mainly located near the ground level and along the courtyard rooflines, where exposed joints permit rainfall penetration, detachment of mud plaster renders and wall paintings, and efflorescence which are all water-related.

Standard systems are being applied to collect and analyze moisture levels (a Protimeter humidity device with pins and probes) and to document seasonal changes. Cores for gravimetric tests are being drilled at several locations. The resulting data will permit an evaluation of the effects of the water table, rainfall, and moisture migration within the structure.

Condition assessment and analysis

A fundamental condition assessment of NKST was made in 2010 and 2013. The temple's upper walls had been completely reconstructed using new mud bricks tempered with hay, and often with gypsum blocks and fired bricks similar to those used in the Southern Palace reconstruction in the 1980s. Modern gypsum plasters were applied liberally over interior and courtyard spaces, often attached to the historic mud-brick substrate with metal screens (chicken wire) and nails. These additions make it difficult to understand historic from modern surfaces and additional studies were undertaken in July of 2013 to discern plaster compositions and conditions.[57] Repairs from the 1990s produced further incongruities; cement used to fill holes left by rising damp was coated with gypsum plaster.



Portion of original courtyard plasters.

The concrete slab flooring and pavers around the building obstruct evaporation and aggravate erosion by forcing rising damp into the adjacent *kisu* and mud-brick walls behind it. The actual topography is 80 to 90 centimeters higher than the internal floor, a discrepancy that further exasperates rising damp conditions in the masonry.

Here, as at Ishtar Gate, the water table lies just below the original flooring, encouraging rising damp and humidity exchange between the soil and wall surfaces.[58] Incompatible modern materials exacerbate the damage: cement renders, metal screens, nails, and gypsum wall plaster 15 cm thick threaten the original fabric. Many sections of gypsum wall near ground level fell off, taking substantial quantities of the mud-brick masonry substrate with them and weakening the masonry above, leading to further collapse.[59] At the temple's southeast corner the entire inside facing of the exterior wall collapsed taking more than half a meter of historic, mud-brick internal wall with it, while reducing support for the ceiling. The ceiling had to be shored and walls braced to prevent further collapse.

The modern roof is built using traditional techniques and materials (i.e. layering timber with plant fiber matting and layers of earth) but it is finished with a heavy layer of a cement-based mortar and modern paving tiles, resembling more the roof of a modern home in one of the nearby villages than a Neo-Babylonian temple. Termite infestation of the rafters, burdened by these modern materials, caused them to collapse at several locations.

57 Alexandra Winkels, "Conservation and Scientific Investigations at Nabu-Sha-Khare Temple and the Ishtar Gate" (commissioned by WMF, July 2013).

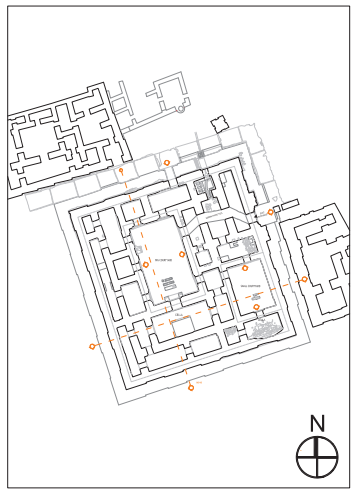
58 Bendakir (June 2010), 25-27.

59 Winkels (July 2013), 6-10.

Examples of Nabu-sha-Hare Temple Documentation

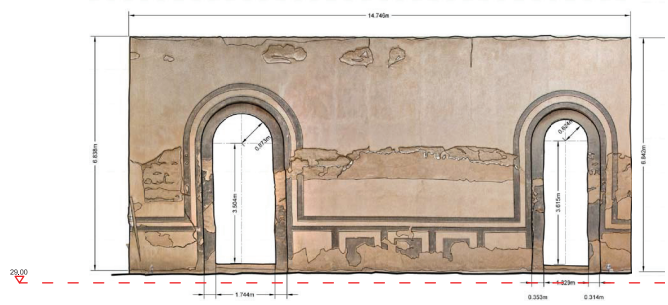
This survey was produced as part of the project, the end result being the first comprehensive architectural drawing set of the monument.

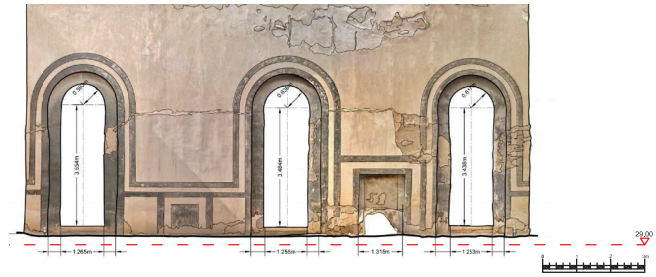
KEY PLAN



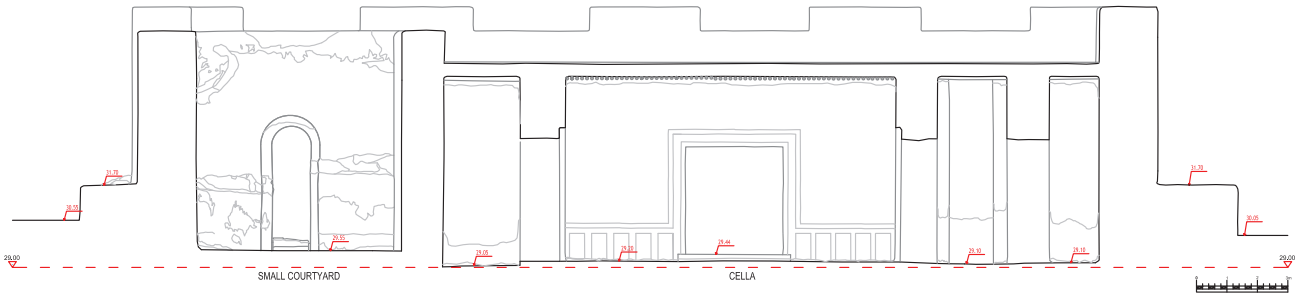
HATCH KEY

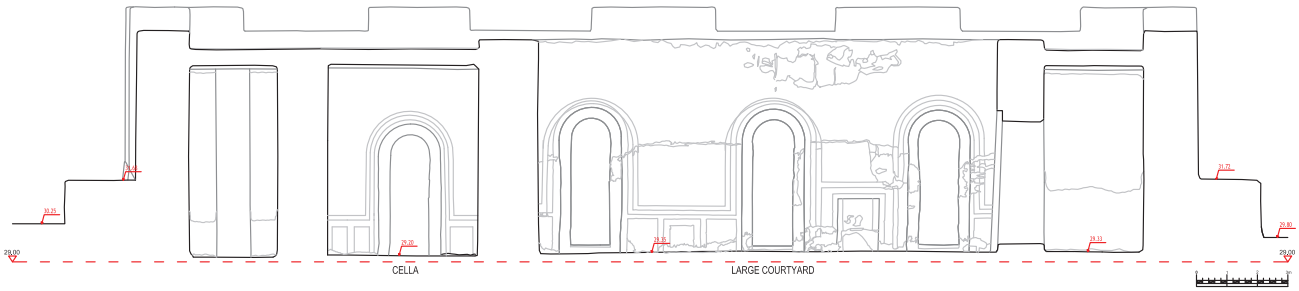
- HISTORIC MASONRY
- TAR STRIPS
- VISIBLE NEW MASONRY REPAIR (BRICK)
- BACKGROUND ROOM

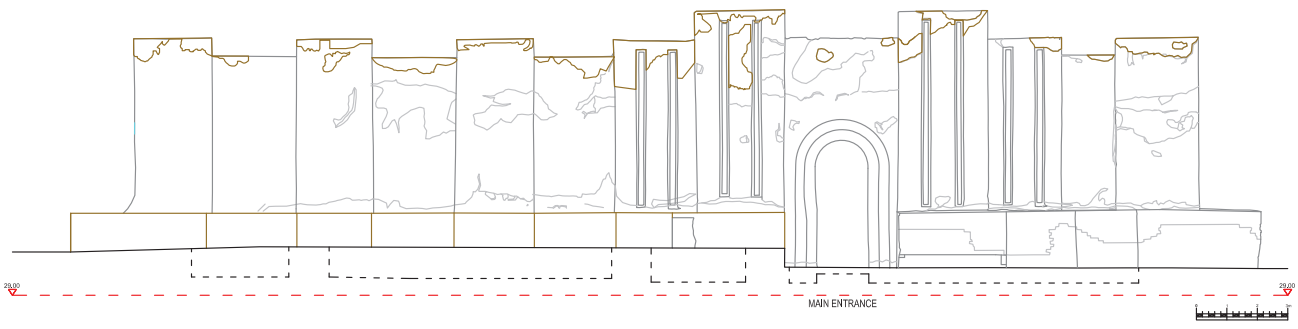


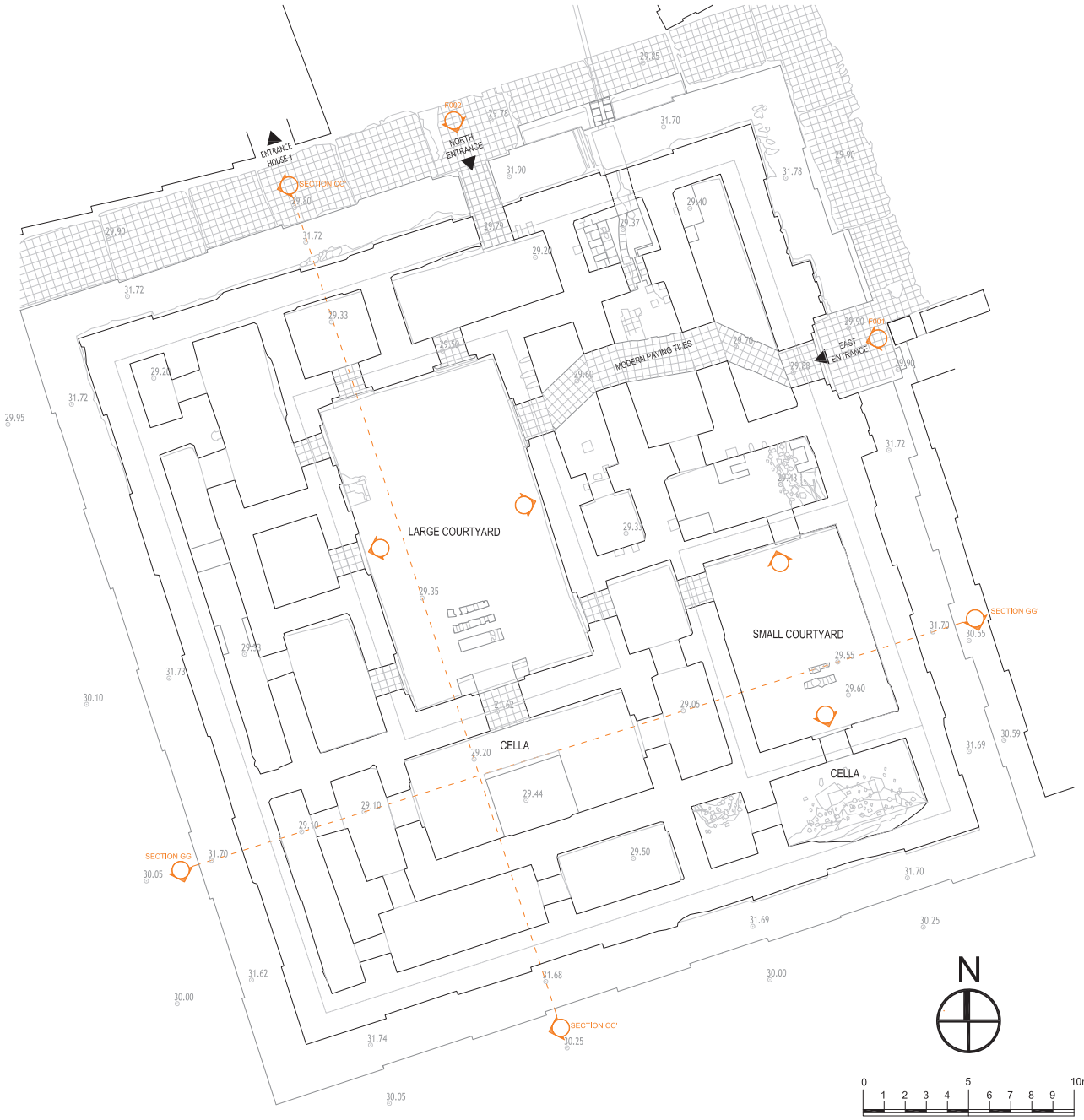


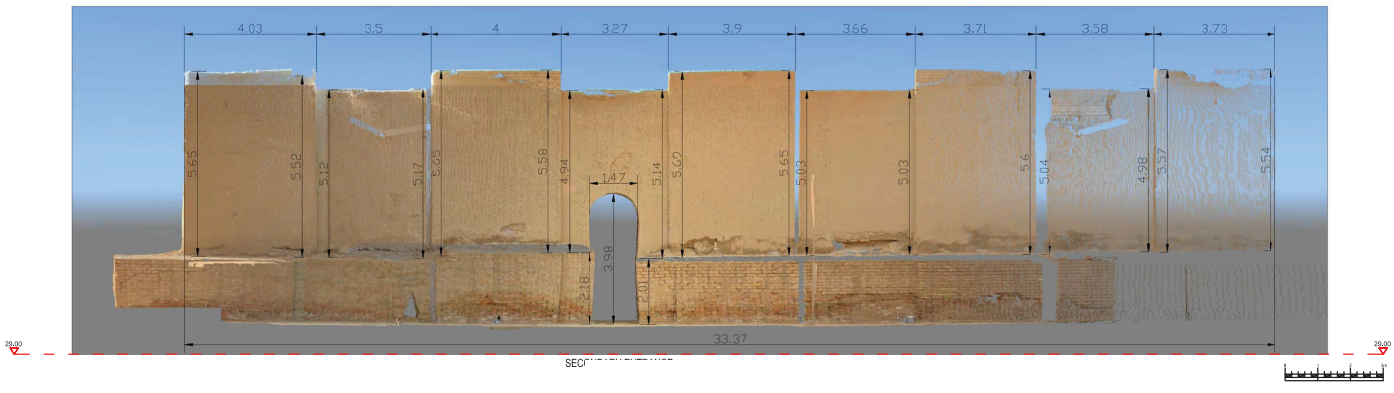
Two-dimensional scan imagery used as underlays for documentation drawings.








ENTRANCE HOUSE 1
SECTION CC'
NORTH ENTRANCE
EAST ENTRANCE
MODERN PAVING TILES
LARGE COURTYARD
SMALL COURTYARD
CELLA
CELLA
SECTION GG'
SECTION GG'
SECTION CC'
N
0 1 2 3 4 5 6 7 8 9 10m


4.03
3.5
4
3.27
3.9
3.66
3.71
3.58
3.73
33.37

Intervention Strategy for Nabu-sha-Hare Temple

Investigative procedures are underway to determine the monument's intervention strategy, but enough is now known to discuss alternatives and designate tasks common to all options (each subject to refinement based on further study of the building). The SBAH will choose from intervention and presentation alternatives presented below.[60]









Alternative 1: Conservation of original elements followed by complete reconstruction includes removal of incompatible modern additions and materials followed by replacement using in-kind traditional materials and techniques. This means removing the entire roofing structure and top three to four meters of modern mud brick and fired brick then replacing it with new mud brick masonry, ceiling timbers, and roofing layers more faithful to its original, historic construction. The ruined temple would be restored to its Babylon Festival-era appearance. However, since many architecture elements of the original temple are unknown, including roof and wall height and whether the courtyards were open air spaces or not, the reconstruction would be based on conjecture. In keeping with international charters the SBAH and WMF consequently discarded this option.

Alternative 2: Conservation of original elements with construction of a shelter includes complete removal of all modern materials and retaining the site as a ruin, such as it was found when excavated. This alternative requires accurately distinguishing between authentic elements and those added or changed during reconstruction. Knowledge concerning the temple's appearance before modern additions is limited and can only be further extrapolated once modern gypsum wall plasters are removed to determine the amounts of replacement materials added atop the original walls. Investigations involving the dismantling of modern additions, including the roof, upper walls, and associated coatings, must proceed cautiously to avoid damaging original material. While removing modern materials may help restore authenticity, it may involve the partial or major loss of some original elements. A large, lightweight shelter would protect the temple. Its cost and design must be assessed, along with its potential impact to the site and the surrounding landscape. The appearance of a new structure amongst several reconstructed earthen buildings clustered in the Temples Sub-Area must be considered.

Alternative 3: Conservation of original elements without a shelter follows the same conservation process as Alternative 2, but with the historic remains left exposed, regularly, and intensively maintained. How these ruins would appear beside nearby reconstructed buildings is a question, and treating the nearby buildings similarly would have to be considered.

60 Thierry Grandin (November 2012), 32-33, 71-77.

Alternative 4: Conservation of the original elements with partial reconstruction requires removing all modern materials but conserving and presenting original elements with sacrificial layers of traditional renders and coatings. In some cases localized shelters may be needed. While technically more sophisticated, this presentation may make distinguishing original from reconstructed elements more difficult for visitors. Although the site would be better protected, weathering of historic flooring and wall coatings remains a challenge, along with presenting adjacent structures in a harmonious context.

Regardless of the chosen alternative, initial actions should proceed:[61]

1. Further research regarding previous excavations in order to understand actions taken at the time should be conducted.
2. Re-excavation of the temple surroundings to their original levels should occur. The current external level of paved and non-paved surfaces is higher than internal ones, encouraging penetration of humidity through the *kisu* to external temple walls.
3. Investigation and survey of original wall renders and coatings in the courtyards should be conducted. Recent conversations with SBAH staff suggest there are more historic surfaces than originally stated.
4. Removal of all modern renders and coatings to evaluate the original structure beneath is suggested. This has proved difficult as thick replacement materials are typically less porous and denser than the original mud-brick masonry underneath, separating them from the substrate and historic plasters has presented numerous challenges.
5. Removal of decayed or non-compatible modern materials, including the upper walls and roof is recommended.

The aforementioned steps aim to reduce the effects of low-level moisture and minimize the burden of 1980s additions. After a period of tests to assess the impact of these interventions, conservation activities will begin:

6. Original mud-brick lost from rising damp around the base of walls, external walls and above the *kisu* will be replaced with compatible substitute materials.
7. Original mud-brick masonry will be treated to restore integrity by replacing decayed or collapsed sections where modern infill must be removed, repairing cracks, grouting, and re-pointing. In cases where the site is exhibited as a ruin, the wall capping will be treated with reinforced bricks and sacrificial coatings for better protection.
8. Original wall renders and coatings will be conserved by micro-grouting surface cracks and, in the case of detachment from the substrate, consolidation by mortar edging and injection to strengthen the bond to the substrate.[62] Areas of total loss could be filled and/or covered with new earthen and gypsum-based mortars with compatible characteristics yet distinguishable from original surface treatments. The techniques will vary depending on the location, whether an external wall, courtyard or internal space. Where there is total render loss but adequate protection, the original mud-brick masonry core may be left exposed.

61 Mahmoud Bendakir (June 2010), 65-66.

62 Hugo Houben and Hubert Guillaud, *Earth Construction, A Comprehensive Guide* (English reprint, Warwickshire: Practical Action Publishing, 1994), 346-349.

Protecting Natural Resources

(See *BM07, 'Existing Natural Resources', BM10, 'Proposed: Land Use', BM11, 'Proposed: Intervention Sub-Areas'* and *BM12, 'Proposed: Traffic and Circulation'* maps)

Given the rate of urban development around Babylon, it may soon become the last large, undeveloped green space in the Hillah municipality and surrounding countryside, and attract numerous visitors on this virtue alone. Based on a biodiversity study conducted by Nature Iraq and field studies undertaken by WMF in 2011, Babylon additionally contains ecosystems worthy of management strategies and interpretation.[63] It is recommended that sensitive interpretive strategies enable visitors to enter these areas from a trail or observe them from a nearby viewing point. Several areas within the site, particularly the proposed Nissan Fitness Park (*see* below), have been identified for conservation that would benefit local communities and visitors, while preserving the site's setting and enhancing its cultural significance.

Nature Iraq's biologists and habitat specialists identified threats to habitats within the site and its buffer zones, including water shortages, road and vehicle disturbances, residential and commercial development, garbage dumping, agricultural intensification, overgrazing, and hunting and fishing.[64]

Urgently needed actions to lessen these threats (which also threaten archaeological remains) include halting illegal building construction, implementing solid waste service improvements for local communities, and preventing livestock from entering the Central Administration Area. Existing federal and local laws cover these activities to some extent, but are not enforced. The SBAH, through its inter-agency coordinating committee, should regard protecting the nature areas listed here as part of its management responsibilities. Engaging consultants like Nature Iraq can improve the SBAH's knowledge of and methods for preserving natural resources.



Date palm grove near Mount Nissan, part of a proposed new fitness park.

63 Nature Iraq, "Biodiversity Baseline Study" (2011).

64 Nature Iraq, "Biodiversity Baseline Study" (2011), 66; WMF site surveys, 2009-2012.

Additional assessments of Babylon's ecology are recommended, including annual migration, nesting, and foraging patterns for birds and other animals. Ideally, a SBAH representative from the education, outreach and communication department could assist in these assessments to build knowledge of the site's natural assets and related responsibilities. Awareness-raising efforts should extend to the Iraqi Police who guard the site and local communities who benefit from it, through strategic partnerships with local environmental NGOs and the Babil Governorate.



Lake Saddam perimeters overgrown with high grass.

Shatt al-Hillah Riverbanks Sub-Area

The Shatt al-Hillah is currently threatened by sewage discharge, fertilizers and pesticides, and urban and industrial run-off.[65] Fishermen sometimes use dynamite to cull fish. There is nonetheless a growing public awareness of the dangers of abusing the river. The SBAH must proactively form partnerships with the Ministry of Environment, concerned citizenry and local fishermen to contain and reverse the damage, and stopping all permanent development on the riverbanks banks within the limits of the Near Buffer Zone.

Preserving the riverine environment is essential. Historically integral to Babylon's setting and well-being, it enhances and expands the visitor experience. The east riverbank could also be considered the preferred arrival/departure point for the site (via ferry, as mentioned above) and walking trails can be developed on both sides. The east riverbank in particular provides an interesting mix of archaeology, future visitor services, and cultural experiences.

Lake Saddam Sub-Area

An artificial lake at the terminus of the Hawliyah Canal is habitat for numerous plants and animals, including a threatened duck species.[66] Other than duck blinds and watchtowers erected around the periphery for birdwatchers, this designated nature preserve area would undergo no development and a quiet zone would be established around it. Other improvements in the Warsaw Gate Sub-Area, such as presentation of the military remains, would be designed or relocated to balance the requirements of these natural features.

High Grass Sub-Area

Pockets of high grass and other vegetation have flourished thanks to the relative absence of visitors. Animals reside in the dense overgrowth at the north side of the Central Administration Area, including nocturnal scavengers and foragers such as fox, jackal, and wild boar. Restricted visitor access will preserve this natural area at least until the SBAH decides to excavate here.

Al-Furat Fisheries

A government-operated commercial enterprise comprising 13 artificial lakes for fish breeding, the al-Furat Fisheries is a habitat for thousands of birds. Babylon's inter-agency coordinating committee should initiate dialogue with officials at the Fisheries to create bird-watching points around the lakes as part of the larger Babylon interpretative program.

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65 Fikrat Hassan et al., Effect of Chemical and Physical Properties of River Water in Shatt al-Hilla on Phytoplankton Communities, *E-Journal of Chemistry,* 2008, Vol. 5, No. 2, 323-330.

66 Nature Iraq, "Biodiversity Baseline Study" (2011), 19-23.

Concept for Future Nissan Park Sub-Area



1) **Convert the existing unpaved road leading to the top of Mount Nissan into a fitness walking trail with scenic overlooks and an outdoor café**
2) **Expand and improve existing parking lots near the Babil River bridge junction and microbus stop**
3) **Acquire all private property inside the site boundary, and as per proposed boundary regulations, demolish existing structures as a protective measure against al-Hillah urban sprawl to the south**
4) **Install an artificial turf sports field, with lights, for rent**
5) **Construct a membership-based fitness center**
6) **Install paved running and walking tracks around Lake Nissan**
7) **Adaptively reuse some existing structures for refreshment stands and public bathrooms**
8) **Demolish existing public and private roads then demarcate an interpretive area for the archaeological mounds of ancient Babylon's outer city walls**
9) **Acquire all private property inside the primary buffer zone, demolish structures and plant new trees parallel to the Baghdad-al-Basra Highway in order to lower traffic noise**
10) **Fence the entire boundaries of Nissan Park**

Future Nissan Park Sub-Area

As the Babil Governorate has identified the need for recreational areas, in Phase Three the BSMP recommends designating a large tract of land around seasonal Lake Nissan as a nature preserve and fitness area. This designation would also serve to protect the southeast corner of the outer city walls now threatened by destruction from permanent development. The area is bounded by subterranean pipelines to the west, includes Mount Nissan on the north, and stretches across to the Babil Canal on the east, to the Baghdad-al-Basra Highway on the south.

Proposals for Lake Nissan, a seasonal body of water used for agricultural purposes, should be developed through a partnership between the Ministry of Tourism and Antiquities and the Babil Governorate in consultation with archaeologists and environmental specialists. Any proposal would require the acquisition of private land in the sub-area as well as the demolition of existing structures around Lake Nissan.

Walking and jogging trails with exercise areas would be installed around the lake and mounds of the outer city walls. An endurance hill climb to the top of Mount Nissan could be featured and limited commercial facilities including a workout gym developed to serve visitors. .

Lake Tammuz Sub-Area

The artificial Lake Tammuz at the south end of the Hawliyah Canal, is larger than Lake Saddam yet hosts less variety of fauna because of its proximity to roads and human settlements where hunting and fishing are active pursuits.[67] Protecting Lake Tammuz largely depends on how the SBAH wishes to define the Central Administration Area perimeter. Existing water features (the Hawliyah Canal and Lake Tammuz) may serve as Central Administration Area boundaries, but will not protect this ecosystem unless perimeter fencing encircles these water features.

67 Ibid., 27-29.

Managing Water Resources

Lowering Groundwater

(See *BM05, 'Existing: Water Resources'* map)

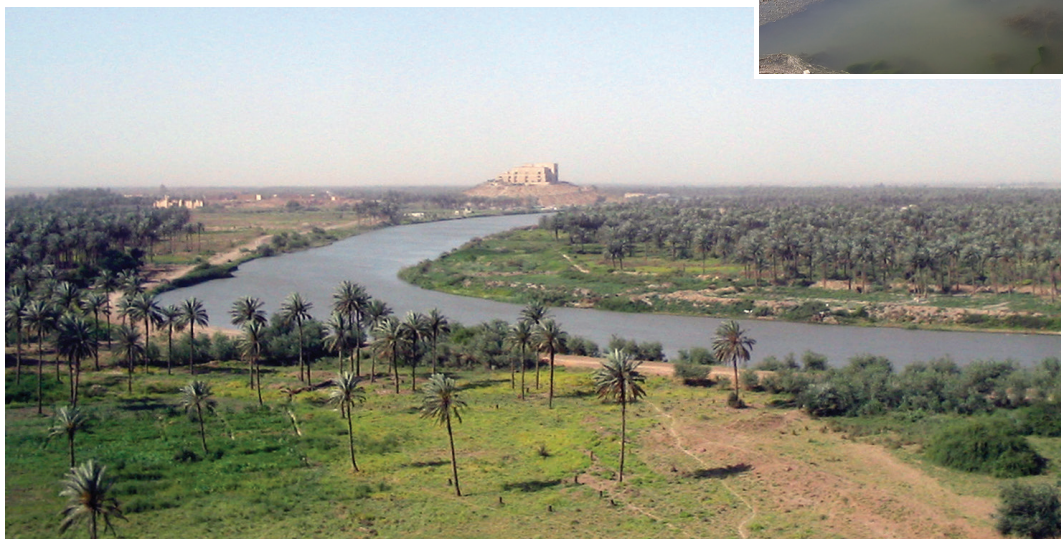
Consulting Engineering Bureau's (CEB) geo-hydrological study confirmed and refined the results of previous studies while offering concepts for de-watering solutions.[68] Groundwater levels rose when the Shatt al-Hillah's levels were deliberately raised for irrigation purposes, and efforts and finances required to mitigate the problem will be considerable.

Using data from previous studies, CEB concluded that to lower the groundwater digging drawdown wells (to pump from) was an option that promised less than optimal levels of success.[69] Pumping from a series of wells requires continuous access to electricity that the present grid is unable to supply and the cost of fuelling diesel generators in times of need would be prohibitive. Well-based drainage systems may, however, provide a temporary solution targeting specific areas. For example, if the SBAH must dig excavation test pits or undertake emergency salvage operations in a contained area, drilling and pumping with generators would temporarily reduce ground water levels.

CEB also examined reports concluding that changing the river's course might more effectively reduce elevated groundwater. Although theoretically sensible, the cost of this solution would be prohibitive. Typically, at other archaeological sites facing the same problem, measures are either taken to salvage a particular monument (or series of remains) or else they are abandoned rather than trying to divert water around them.[70]



Shatt al-Hillah riverbank in Babylon (below), where the water level is often raised according to seasonal agricultural requirements (right).



68 Consulting Engineering Bureau, 'Hydrological Study of Ancient Babylon Site, Final Report' (commissioned by WMF, 2012).

69 Ibid., 42. Earlier studies of Babylon's hydrology examined by CEB include Directorate General of Geological and Mineral Surveys, Ministry of Industry, 1979; Al-Furat Centre for Studies and Design of Irrigation Projects, 1989; and I.B. Karim in a doctorial dissertation presented to the University of Technology Baghdad, 2005.

70 Many archaeological sites have been lost as a result of dam/reservoir building. The UNESCO-coordinated Nubian Campaign in response to the construction of the Aswan High Dam, was a unique instance of mass salvage.

CEB recommends neither pump wells nor changing the course of the Shatt al-Hillah. Instead, the CEB hydrological study proposes a two-stage transmissivity reduction for lowering of groundwater across the site consisting of:

1. An underground cut-off curtain running parallel with the Shatt al-Hillah. This entails drilling hundreds of deep narrow holes in three rows (the deepest 45 meters) in line with the river, then injecting grout. Under pressure, the grout would spread underground forming an impenetrable curtain.
2. Grouting hundreds of holes 25 meters deep in similar fashion on the north, east and south inner sides of the Hawliyah Canal.

This would create an underground dam containing the aquifers around the Central Administration Area. CEB estimates project costs at approximately USD10 million.[71]

Alternatively, the eastward portion of the Hawliyah Canal could be drained and its concrete basin demolished and in-filled, reconnecting the inner and outer city areas within the site boundaries. A cut-off curtain would be implemented only along the Shatt al-Hillah and north and south lengths of the Hawliyah Canal, where the concrete basins could be improved to prevent leakage. Besides lowering costs, this alternative would allow Lake Saddam, Lake Tammuz, and their associated nature habitats to be preserved. Additionally, since this solution requires less grouting, the damage risk to archaeological remains would be reduced.

None of the proposed large-scale, high-impact interventions are ideal for a highly sensitive archaeological site. Whichever method is used, lowering groundwater may increase the consolidation of soils at Babylon, resulting in compaction and additional pressures on fragile subterranean fabric such as mud brick.[72] Digging and grouting may destroy archaeological material.

Similar gravity-well projects undertaken at other historic sites combined well-digging with archaeological salvage operations.[73] These typically required divers trained to locate archaeological material in the murky waters of the wells. CEB believes that water pumping would significantly accelerate the drawdown of water, but also increase the risk of ground collapse. Relying only on evaporation however, would achieve a far more gradual drop in water levels.



Lake Tammuz's nature habitat with Mount Nissan in the background.

Given the sheer size and complicated nature of any dewatering project at Babylon, additional research must be conducted and further professional assistance sought, possibly from international consultancies who handled ground water issues in similar alluvial-located archaeological environments in Egypt. To start, an exploratory committee dealing solely with water issues should be formed, including the inter-agency coordinating committee, community leaders, and farmers representing the affected area in possible consultation with CEB.

71 Consulting Engineering Bureau, "Hydrological Study," 42-44. A bill of quantities appears in Appendix A.

72 Ibid., 43.

73 Peter Sheehan, *Babylon of Egypt, The Archaeology of Old Cairo and the Origins of the City* (American University in Cairo Press, 2010) presents a comprehensive site history of a major hydro-archaeological project (2000-2006) to lower groundwater affecting monuments in an area of Cairo known historically as Babylon.

Managing Irrigation

(See *BM05, 'Existing: Water Resources' and BM10, 'Proposed: Land Use'* map)

Different types of irrigation systems are used within the boundary, around the Babylon Conference Center, and former palace of Saddam Hussein. On Mount Saddam, line-fed hoses are laid on the ground for watering, but most watering is done by flooding irrigation trenches adjacent to and running through fields. In the southeast corner of the Central Administration Area the land is flooded after heavy rains, the water collecting in a large but shallow seasonal lake. Lake Nissan is an even larger shallow body of water to the east, an unrestricted retention pond tapped for agricultural purposes that concentrates water over archaeological areas.

The cumulative effect of irrigation water used in areas surrounding the site is of concern. Although Law 55 cites restrictions, earth is being dredged and water is being channeled and pumped to cultivate land within the boundary and proposed buffers.[74] Farmers complain that restrictions limit their yields and profits. The amount of water required for maintaining crop productivity in these areas has not been quantified and a better understanding of how these irrigation practices affect groundwater levels and archaeological remains is needed.

For the SBAH to formulate appropriate agricultural policies inside Babylon (and elsewhere in Iraq around archeological sites) it must determine where to designate agricultural land use and optimal crop water consumption for those areas. The SBAH, through its relationship with the Babylon Community Association, should compile a list of profitable crops that have low water consumption and shallow roots. Experts within the Ministry of Irrigation and Iraqi universities can also help develop sound cultivation policies.

Meanwhile priority actions include adopting the land use zoning proposed in the BSMP and acquiring all private properties inside the Central Administration Area, where agricultural activities must stop immediately.



Flood irrigation, a common practice in and around Babylon.



A typical agricultural field inside Babylon.



Water control gates from the Shatt al-Hillah that feed the Babil River.

74 Iraq Law No. 55, art. 9, item 3 and art. 15, item 2. The law is vague and provides no specifics other than banning canal excavation and cultivation. In recent cases water canals were dredged and enlarged cutting deeper into the archaeological strata with the SBAH's full knowledge.

Improving Infrastructure

Improving site infrastructure requires an understanding of existing conditions and future needs. Key aspects include the following:

Measuring Carrying Capacity

(See *BM13, 'Proposed: Visitor Facilities and Presentation'* map)



Mass tourism presents a conservation challenge.

The United Nations World Tourism Organization (UNWTO) defines carrying capacity as 'the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction.'[75] A carrying capacity study at Babylon is in its initial stages, research that informs many of the proposals in this section. It is a natural extension of the BSMP.

Visitor records from the Babylon Festival (when visitation rates were high) are lacking. Consequently the capacities of visitor facilities (restaurants, craft venues, etc.) built at that time are difficult to accurately assess and/or use as a baseline from which to determine necessary additions. Further study is required to assess the visitor infrastructure (bathrooms, parking spaces, restaurants, shops) required to operate Babylon as an attraction.

In 2012, Babylon received 13,000 Iraqi visitors (mostly group tours) and just over 200 international visitors.[76] As tourism is encouraged and visitor numbers are likely to grow, there is an urgent need to understand the site's carrying capacity, especially in the Central Administration Area. Detailed strategies for phasing infrastructure improvements can then be developed in cooperation with other governmental agencies. The following issues should be evaluated towards completing a carrying capacity study, designs, and budgeting for required improvements in each sub-area:

Visitor Infrastructure

Temporary and permanent facilities housing visitor services will be established at Babylon through a phased implementation. At the core of development site museums should accompany a visitor center and together serve to interpret specific periods of Babylon's history as well as dispense information. Additional visitor amenities should be provided throughout the site as demand arises, including bathrooms, interpretive routes, and associated interpretive media.

75 Samantha Desirée Santonocito, "Sustainable Tourism and Carrying Capacity in the Mediterranean Area," Vol. 1 of papers presented at the third IRT International Scientific Conference, Helwan, Egypt, October 2009, 387.

76 Figures provided by the SBAH indicate Babylon's visitors consist primarily of Iraqi student groups, with peak attendance during post-exam school holidays. International visitors mainly consist of Baghdad-based diplomatic missions and small adventure tour groups operating since 2010.

Commercial Real Estate Feasibility Appraisal

Babylon has more abandoned than functioning buildings, mostly commercial properties developed for the Babylon Festival, which became ruins after the site was ransacked with the fall of Saddam Hussein. An evaluation and analysis of their potential reuse as commercial properties based on rehabilitation costs, location and proximity to archaeological areas will determine those to be left standing. Existing facilities that have been vandalized will require structural upgrades and new utilities systems; in many cases constructing new facilities in appropriate locations would be more economical.



The Central Administration Area comprises several former picnic grounds.

Electrical Network

Since 2003, Babylon's electrical network has been systematically vandalized. In 2008 the SBAH assessed what was needed to restore basic electrical services to the site. The assessment, which predates the BSMP and its proposals for infrastructure upgrades, will need to be reviewed and revised to correspond with the recommendations found in this document (*see* Action Plan). Without steady electricity, Babylon can host little more that the current, low visitor numbers, and offer limited access to facilities such as the Nebuchadnezzar Museum. Cooperation between the Babil Governorate and SBAH would help remedy this situation.



Most of the derelict modern buildings should be demolished.

Potable Water

Potable water needs and availability at Babylon have not yet been assessed. Existing fresh water pipes may not provide adequate supply for expanded visitor facilities. Following a comprehensive carrying capacity study, the BSMP recommends the SBAH cooperate with the appropriate government agencies to assess the current supply lines from the east and south to ascertain potential requirements, including linking the Central Administration Area to the municipal system.

Little is known of the potable water use or needs of communities located within the site boundaries with the exception of the water supply for New Kweiresh. Fed by pumps north of Warsaw Gate using Shatt al-Hillah water, the New Kweiresh potable water supply must be re-routed (so as not to cross the site) and connected with the municipal network through piping parallel to the Baghdad-al-Basra Highway.



Visitor infrastructure extends to solid waste disposal improvements as well; the current South Entrance Corridor presents a questionable first impression.

Sewage Disposal

Al-Jimjmah and Sinjar villages are developing suburban sprawl yet remain unlinked to the municipal sanitation system. Existing cesspool and septic tank arrangements on most private properties reduce but do not totally remove organic waste, placing subterranean archaeology at risk. The Babil Governorate must prioritize these denser populated areas for linkage to the municipal system. As noted in the boundary and primary buffer zone regulations, the BSMP recommends an immediate halt to new cesspool systems and the installation of only closed septic tanks. The BSMP recommends further study of waste water treatment options by engineers from the Babil Governorate to identify problems and solutions.

The condition of existing sewerage systems for facilities inside the Central Administration Area, principally those under the authority of the SBAH and Babil Governorate, must be assessed and repaired where necessary. When funding is available for rehabilitating sub-areas, all cesspools on these properties should be changed to closed container septic tanks.

Routing Local Traffic and Circulation outside the Central Administration Area

(See *BM12 'Proposed: Traffic and Circulation'* map)

The BSMP recommends establishing standard arterial, distributor and local access road categories to move non-visitor circulation away from the Central Administration Area. Local traffic will be routed to the Baghdad-al-Basra Highway and al-Hillah-Karbala Road along four existing arterial roads, improving movement and safety. The following roads are proposed for improvements as main arterial routes for local traffic:

1. The Bernoun Road, running northwest-southeast between Bernoun village and the Baghdad-al-Basra Highway, will undergo improvements, with a roundabout placed at the intersection of the primary site entry road south of the Summer Palace.
2. The East Babil River Road, running north-southeast parallel to the river and across it to the Baghdad-al-Basra Highway, will be generally improved, with a new bridge running over the river. Improvements will take into account the proposed Nissan Fitness Park described later in the BSMP.
3. Al-Jimjmah Road (*aka* the Amran ibn-Ali Shrine Road) running north-south, will be rerouted around archaeological remains and straightened to improve access and traffic flow for residents to the Baghdad-al-Basra Highway.
4. The Annanah-Sinjar Road, across the Shatt al-Hillah from the Central Administration Area, is a busy north-south route parallel to the Annanah Canal, providing these communities access to the al-Hillah-Karbala Road. It will be generally improved and widened to four-lanes.

Reducing Roads inside the Site Boundaries

(See *BM12, 'Proposed: Traffic and Circulation'* map)

With efforts to move traffic outside of Babylon, a traffic circulation program should be further developed in conjunction with the Hillah Master Plan and local traffic authorities to reduce distributor and local access roads within the site boundary. The circulation system design should address the following:



The truncated former Baghdad-al-Basra Highway is a clear example of unnecessary pavement inside Babylon.

Canceling local access proposals

There is a long-standing municipal proposal for upgrading an existing local access road and associated footpaths running parallel and west of the Shatt al-Hillah between Sinjar and the river. The plan calls for linking traffic between the growing communities of Sinjar and Annanah directly to Road 60 south of the Shatt al-Hillah bridge (a.k.a the Baghdad-al-Basra Highway north of the bridge) along the edge of date palm groves.

This proposal must be abandoned, as it encourages further development inside Babylon's boundaries, along the river's edge, and within palm groves. Existing roads parallel to the river should be only used as access for emergency vehicles and a pedestrian walkway inside the site boundaries. Arterial circulation in these communities should remain limited to the Annanah-Sinjar Road, which moves traffic away from Babylon towards the Hillah-Karbala Road.

Eliminating unused roads

The Hawliyah Canal, dug around the Central Administration Area in the 1980s, truncated the Baghdad-al-Basra Highway. The dual carriageway south of Marduk Gate (built over archaeological remains) became a road to nowhere that can be demolished and cleared away. Other roads should be closed and demolished including the connector near the northeast corner of the Central Administration Area between the old Baghdad-al-Basra Highway and the East Babil River Road. The paved network of access roads for the abandoned tourist village north of the Greek Theatre should also be demolished. The road adjacent and south of the Hawliyah Canal between the Hammurabi statue and Lake Tammuz should be closed; the dead-end road east of Tell al-Jimjmah demolished; and the west entrance to the Tomb of Amran ibn-Ali removed (*See* BM12, 'Proposed: Traffic and Circulation').

Site Access Improvements

(See *BM11, 'Proposed: Intervention Sub-Areas'* and *BM12, 'Proposed: Traffic and Circulation'* maps with recommended site plan improvements for several of the entrance corridors)

Several traffic corridors around Babylon's periphery have been identified for improvements to ease traffic flow, increase safety, and present pleasing approaches to the site. A consistent treatment of hardscape, open space upgrading, and signage is recommended for the following locations:

North Entrance Corridor
In Phase Two this road will be upgraded with entrance signage, curbing, drainage, and pavement treatments at the Baghdad-al-Basra Highway junction to present a more formalized entry to Babylon. A small pullover parking area is recommended adjacent to the Summer Palace during Phase One. At the south end of the corridor, the intersection with the Bernoun Road will be defined with similar hardscape treatments continuing to the Saddam Hussein sign, where a second pullover will be located. To improve safety a roundabout may replace the staggered intersection.

Future Railway Station Connecting Corridor
The proposed pedestrian route will be enhanced with new shade tree plantings. Footbridges will be erected to cross the Baghdad-al-Basra Highway and Babil River between the proposed Babylon railway station and visitor center near Marduk Gate (Phase Three). The pedestrian route and footbridges will be designed to accommodate bicycle traffic. A supporting taxi/microbus stand could be situated on both sides of the Baghdad-al-Basra Highway at the railway station to improve vehicular access to Babylon.

South Entrance Corridor
In Phase Two the long neglected traffic island at the Hammurabi Statue will be formalized with a roundabout, simplified signage and landscape and hardscape treatments in a manner keeping with the North Entrance Corridor near the Summer Palace. Envisioned as the main southern entrance to Babylon, the ideal situation would be to disassemble and turn the statue around; facing towards al-Hillah it would greet visitors arriving from that direction.

Amran Entrance Corridor
Since the number of pilgrims is increasing annually, rerouting this corridor to the west of Tell al-Jimjmah during Phase Two will improve access to the shrine and reconnect the archaeological mounds to the larger undulating archaeological landscape at the south end of Amran Hill. At the same time, security fencing will be installed along the edge of the Central Administration Area where it passes al-Jimjmah. In addition to fencing, hardscape improvements including curbing, drainage, street lighting, and directional signage are recommended. The existing microbus terminus at al-Jimjmah could also be upgraded with a new parking lot for the community and visiting pilgrims.

Al-Jimjmah Commercial Corridor
The main street of al-Jimjmah, an uninspiring stretch of low-rise residential and commercial buildings on the edge of the site boundary, does little to encourage visitors to explore the community beyond the Shatt al-Hillah. Upgrading building facades and hardscape street elements in Phase Three would create a more inviting environment for inhabitants and visitors. This should be a community-based process engaging residents in designing improvements for building finishes, lighting, and pavement treatments (following the established boundary and primary buffer zone regulations). The results, if carefully planned within the context of socio-

economic proposals, can facilitate business development and provide improved open spaces for inhabitants. Funding sources could include the Babil Governorate with the assistance of ministries in Baghdad.

Public Transportation

(See *BM12, 'Proposed: Traffic and Circulation'* and
BM13, 'Proposed: Visitor Facilities and Presentation')

Improved public transportation is essential to reduce vehicular traffic and pollution at Babylon. Recommendations for developing alternative modes of site access and re-rerouting existing networks outside of the site are as follows:

Shatt al-Hillah River Ferry

The Hillah Master Plan calls for ferry transport on the Shatt a-Hillah between al-Hillah and Babylon.[77] Partly for this reason, the Master Plan zones large tracts of land east and south of the former Babylon Hotel (a private enterprise located just outside Babylon's boundary and once used to house the US Regional Embassy) for additional accommodations. Ferries could stop at the hotels along the way, at al-Jimjmah (for commercial interests and guesthouses on the east bank), Sinjar (for the same on the west bank, and visits to the Furat Fisheries) improving transport and creating economic opportunities for the local communities. The proposed Babylon Conference Center stop could feature a ferry station and ticket office; another could be positioned near the ziggurat of Babylon. The ferry would turn around at its last stop in Annanah.

Microbus service

Microbus service between the Naziza Transportation Garage (an al-Hillah terminus) and the communities of al-Jimjmah and Bernoun offers transport to the edge of Babylon's Central Administration Area. Routes could be adapted to better serve Babylon visitors and local residents. For instance, microbus traffic coming from Naziza to Bernoun could also stop at the Babylon railway station planned for east of the site. Alternatively, from the Baghdad-al-Basra Highway the route could follow the East Babil River Road passing the proposed Nissan Fitness Park and south of New Kweiresh before arriving at Bernoun.

Since the Babylon Conference Center Road will be closed to the public, the Jimjmah microbus route could stop at a proposed village parking area. Visitors could then walk down the village's main street to catch the ferry to the Babylon Conference Center. The same service and parking lot would function for Shi'a pilgrims visiting the nearby Shrine of Amran ibn-Ali. The Sinjar and Annanah microbus service would continue as in the past, but visitors interested in exploring the proposed date palm conservancy could then take the ferry across the river to the Babylon Conference Center entrance. Others might wish to use microbuses to reach guesthouses or restaurants in the villages.

Walking trails

In Phase Three, designated pedestrian trails will be established beyond the visitor routes inside the Central Administration Area and along the Shatt al-Hillah. These will shape a formalized network of public trails connecting the core of Babylon to nearby destinations. Surface treatments will vary based on location and further study.

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77 Ministry of Municipalities and the General Directorate of Urban Planning, *Updating the Master Plan for the City of al-Hillah; the Strategies of al-Hillah, Stage 6* and *Final Report for Updating the Master Plan for the Municipality*, May, 2007.

The Visitor Experience: Interpretation and Presentation

(See *BM13, 'Visitor Facilities and Presentation Plan'* map)

Although Iraq's political situation remains unstable, stakeholders look forward to the inevitable return of visitors to Babylon, expressing both national pride in the site and anticipation of tourism's economic benefits. The BSMP develops a long-term plan for visitor facilities and programming that offers an informative guide to Babylon without compromising its assets. The choice of what to preserve, how to preserve it, and how it is to be presented to the public are elements of site interpretation.[78] Planning emphasis targets a reduction of modern structures that now cover large areas of the site to restore integrity to the archaeological remains and preserve areas that provide environments for flora and fauna. Modern buildings, infrastructure and pavements will be re-concentrated along Marduk Street, the east-west axis through the site. Beyond this general premise this section defines interpretive schemes addressing Babylon's history and outlines the site's general presentation, noting the infrastructure needed to receive and circulate visitors, with proposed implementation in three phases.

Framework for Interpretation

Interpreting Babylon is an educational activity using various media to convey the significance of the site's resources to the public.[79] The aim is a deeper understanding and appreciation for Babylon's value that inspires the wish to protect and preserve it. Rather than simply presenting facts, as has been done in the past, interpretation is regarded as an interactive process, representing a shift in what is explained and how these explanations are communicated. The SBAH Babylon Committee selected three themes or messages to guide the development of interpretive media for visitors.

1) Human Interaction with the Physical Environment

As one of the earliest, largest, and most enduring human settlements, Babylon exemplified an urban way of life that was inextricably linked with its physical environment. Irrigation-based agriculture on a rich alluvial plain supplied the wealth expressed in monumental architecture. The city's evolution accommodated the shifting course of the Euphrates River, which inspired a number of adaptive planning solutions. The most dramatic, the Neo-Babylonian city, is an outstanding early example of a grand civic project, the building of an imperial capital.

2) Babylon's Significance in Human History

The Ishtar Gate, Processional Way, the temples, and palaces of the Neo-Babylonian city mark the culmination of ancient Mesopotamian architectural, urban, and cultural traditions. A center of learning for the ancient world, Babylon's legacy of cuneiform texts containing contributions to literature, mathematics, astronomy, and other subjects are the object of continuing research. Babylon's imagery and historic narrative have inspired myth, philosophy, art, and literature

78 ICOMOS, *Ename Charter of 2008* (ICOMOS, 2008), http://www.enamecharter.org/downloads.html.

79 Interpretation-related publications consulted for the BSMP include Freeman Tilden, *Interpreting Our Heritage* (Chapel HIll: University of North Carolina Press, 1957); Sam Ham, *Environmental Interpretation* (Fulcrum Publishing, 1992) and Larry Beck and Ted Cable, *Interpretation for the 21st Century* (Champaign, IL.: Sagmore Publishing, 1998).

throughout time and the countless classical and modern references to Babylon in works of art and scholarship are testimony to its place in the history of civilization.

3) Babylon in Recent History

Just as Babylon's ancient kings aligned themselves with the city's heritage by restoring or erecting monuments built by predecessors, so have modern leaders sought to leave their mark and bask in Babylon's reflected glory. Saddam Hussein reconstructed royal monuments and transformed the landscape into an imperial pleasure ground and stage for international festivals. From April 2003 to December 2004 Coalition Forces established a military base, known as Camp Alpha, on the site. Traces of the military presence constitute yet another chapter in Babylon's millennial history.

Presentation

(See *BM13, 'Visitor Facilities and Presentation Plan'* map)

Enhancing the visitor experience at Babylon requires revising interpretive frameworks and improving site presentation, a process to be implemented in three stages. Phase One, lasting one to five years, involves upgrading basic visitor facilities and localized infrastructure to support them, reopening the Nebuchadnezzar Museum and Greek Theatre, hardscape improvements (i.e. furniture and pathways), and the development of site signage. Phase Two (six to eleven years) focuses on improvements of utilities networks, new commercial and operations facilities, demolition of obsolete buildings and the implementation of new circulation designs. During Phase Three, (twelve to twenty years) a new visitor center will be built and a research center established.

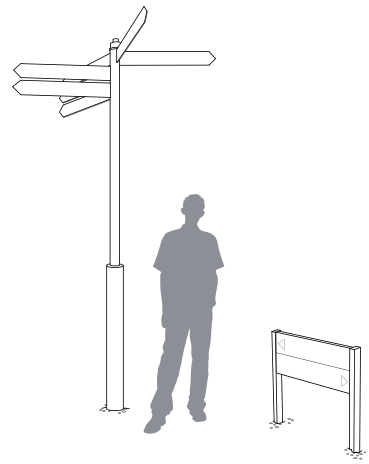
Visitor routes

The primary route for visitors to be budgeted and installed in Phase One, will begin at the Marduk Gate, move east-west along Marduk Street, past the Greek Theatre to the Nebuchadnezzar Museum Sub-Area, looping through the Palaces Sub-Area and end in the Temples Sub-Area. A secondary visitor route, to be formalized in Phase Two, will encompass the former Palace of Saddam Hussein Sub-Area, the Warsaw Gate Sub-Area and nearby nature preserves. Another secondary route within the Ziggurat and Amran Sub-Area will connect to the Temples Sub-Area. In Phase Three, access points to a network of nature trails will be developed, requiring additional entrance and exit points into Babylon and related staffing, infrastructure, and budget.



Existing walkways that infringe on monuments should be removed.

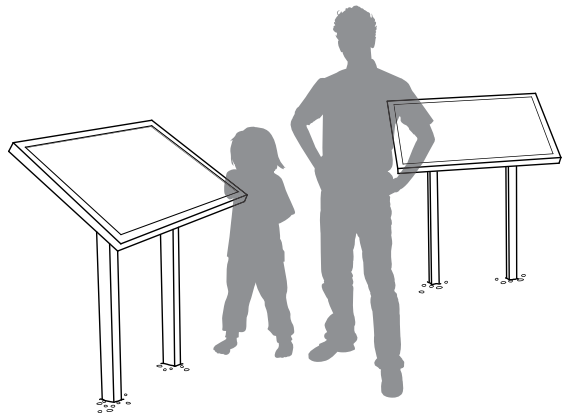
Existing concrete and tiled paving will be removed but further study and design is required to determine the hardscape treatment for all visitor routes. Policies for protecting and preserving Babylon, climate conditions, security concerns, and the availability of resources will guide choices of finishes and signage. All constructed pathways should be reversible, unobtrusive and complementary to the archaeological remains and reconstructed monuments.



Way-finding signage

The primary (Phase One) and secondary visitor routes as well as other areas of visitation (Phase Two) will be equipped with Arabic and English way-finding signage. The following types of way-finding signage will be employed:

- Orientation signage at route intervals, including crossroads where secondary visitor routes leave the primary route. These will be vertical panels displaying the viewer's location keyed to a site map indicating all major landmarks, visitor routes and facilities on both the map and accompanying legend.
- Directional signage indicating landmarks, museums, and amenities. These will be vertical standing, waist-height signs providing directions.
- Fingerposts at crossroads indicating directions, often in combination with orientation signs.



Interpretive signage

Interpretive signage will be minimal, limited to waist-height, angled lecterns at every site and at each of the identified stops along the primary and secondary visitor routes. The lecterns, displaying Arabic and English text and images, serve less as an interpretive tool than signposts referring to numbered locations in the printed guidebook where more information is available. Brief descriptions should reflect the three interpretive themes. Advanced interpretive signage will be provided in indoor spaces such as the visitor center and site museums, complemented by multi-media presentations. The designs of these exhibit spaces are subject to further study by the SBAH and its partners.



Proposed wayfinding and interpretive signage for Babylon.

Other interpretive media

The SBAH should support the publication of souvenir pocket guides (first in Arabic and English) containing detailed information that map Babylon's walking tours and are number-keyed to signage and site lecterns. These informative, souvenir publications will be sold on site and serve as prototypes for a series covering major archaeological sites in Iraq that can generate revenue for the SBAH. In Phase Two, depending on improved internet access, the SBAH should investigate digital media interpretive formats, including a website with pages for Iraq's major archaeological sites, pop-up interactive applications and a Babylon smart phone application.

Site Guides

Site guides need training to improve the content and style of presentations that should be geared towards interpretive themes rather than a recitation of facts and statistics. Guides should pass an examination in order to be licensed and identified as official site ambassadors. During Phase One, SBAH archaeologists will conduct tours of Babylon. In Phases Two and Three members of local communities and the Friends of Babylon (or similar stakeholder group) could be selected for training and employment as guides. Archaeologists will supervise, license, and administer locally-contracted guides. People living inside the site boundary and primary buffer zone will be given priority employment, followed by those living in the Near Buffer Zone. Archaeologists would remain integral for scientific lectures tied to specific themes, topics, and sites.

Visitor Infrastructure

(See *BM13, 'Visitor Facilities and Presentation Plan'* map)

This preliminary overview of visitor-related infrastructure must be developed alongside logistical considerations based on a carrying capacity study. The guiding principle will be to concentrate the visitor infrastructure and services mainly in ruins scattered around the site, along the east-west axis of Marduk Street to reduce the impact on archaeology and cost of utility lines. In Phase Two additional electricity, fresh water, and sewage systems will be installed beneath the street. Obsolete modern facilities and associated infrastructure farther afield will be demolished.

Visitor transport

In Phase One, while visitor numbers remain low, transport inside the Central Administration Area will continue to rely on private cars and buses. In Phase Two and Phase Three vehicular movement inside the Central Administration Area will be restricted. As visitor numbers increase, the large parking lots west and east of Marduk Gate will be employed. From the west parking lot, visitors may rent bicycles, walk or be shuttled via an electric or motorized shuttle along Marduk Street, the main access road. The SBAH may wish to also explore horse cart traffic along fixed paved routes. The shuttle will stop west of Marduk Gate (site entrance), Greek Theatre (shopping and restaurants), Hammurabi Museum (temporary visitor center), Nebuchadnezzar Museum, and the Babylon Conference Center. When the new visitor center opens and arrivals occur east of Marduk Gate, the shuttle train will start in the center's parking lot and pass through Marduk Gate into the Central Administration Area. The shuttle route may be expanded to a proposed ferry stop near the ziggurat and the Warsaw Gate Sub-Area.

Entry tickets

During Phases One and Two entry tickets will continue to be sold from the police station west of Marduk Gate. As funds become available, the location can be improved and equipped with a first aid station. A single entry fee for the Central Administration Area would cover access to the former Palace of Saddam Hussein. The current price of 20.USD for international visitors, compared with other regional tourist sites, is high. Considering Babylon's limited services 10.USD seems more reasonable at present. Following site improvements ticket fees can be adjusted accordingly. Special cultural events held at the Greek Theatre will be priced and sold separately. During Phase Three, ticket sales will shift to the new visitor center and entry made at Marduk Gate.

Bathroom facilities

Public bathrooms will be added along Marduk Street based on the results of a carrying capacity study, their design and appearance consistent throughout the site. Existing bathrooms are sufficient for a small number of visitors, but additional ones should accompany the proposed visitor facilities in the Nebuchadnezzar Museum, Babylon Conference Center, and future Visitor Center sub-areas. The SBAH should explore contracting bathroom operations and upkeep to local communities.

Commercial operations

To develop effective commercial operations, the SBAH and Ministry of Tourism and Antiquities must first conduct carrying capacity studies, assessing needs and existing resources before planning or implementing interventions. Souvenir shops and food outlets should be outsourced to local businesses who would rent site facilities. The ruined gymnasia at the Greek Theatre and Nebuchadnezzar Museum courtyard could serve as handicrafts/food bazaars for locally-produced goods bearing a 'Made at Babylon' logo. The sale of souvenirs such as Babylon guidebooks, maps,

and other informational media inside the Central Administration Area should remain the domain of the SBAH. The BSMP calls for concentrating commercial operations along the Marduk Street axis and, where possible, demolishing abandoned facilities in areas of high archaeological value. It also endorses limiting the number of these facilities inside the Central Administration Area to encourage opportunities for private businesses in the surrounding communities.

Removal of military remains

Outside of the Warsaw Gate Sub-Area, in Phase One modern military remains will be dismantled and removed from the site (*See* BM04, 'Existing: Military Remains and Other Damage' map). This includes materials no longer in use, or proposed for reuse or interpretation. In some cases, such as Camp Alpha's guard towers, they may be relocated and reused based on discussions with the Iraqi Police. During the course of assembling the BSMP military remains were relocated by the police or removed as part of the physical interventions of the Future of Babylon project.

Planning Interpretation and Presentation in Sub-Areas

(See *BM13, 'Visitor Facilities and Presentation Plan'*
and *BM15, 'Proposed: Museums Sub-Area Interventions'* maps)

Visitor-related improvements including applicable interpretive themes are outlined below by sub-area.

Summer Palace Sub-Area

Applicable interpretive themes: Human Interaction with the Physical Environment and Babylon's Significance in Human History

During Phase One, a small parking area with interpretive and way-finding signage will be installed by the Summer Palace. The ruin will be fenced pending investigations to determine the best course of action, whether further excavations or partial reburial. Other efforts should concentrate on preserving view sheds from the Baghdad-al-Basra Highway and preventing encroachments through enforcement of boundary and buffer zone regulations.



The Summer Palace requires better protection and presentation.

Greek Theatre Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History and Babylon in Recent History



The Greek Theatre's gymnasium offers opportunities for commercial facilities.

Phase One begins with commercial feasibility and carrying capacity studies to plan the best course of action for the Greek Theatre Sub-Area, possibly as a stand-alone entity within Babylon. Having assessed the costs of upgrades and amenities to support the facility, it may be feasible to develop the Greek Theatre as a regional center for culture and entertainment operated by the SBAH in partnership with the Babil Governorate. In order for the Babil Governorate to invest in the project, the Ministry of Tourism and Antiquities and SBAH, the legal authorities over the site, would have to formally grant the Governorate a share in its development and use. Since the Ministry of Finance controls all Ministry of Tourism and Antiquities' revenues, it must clarify the use of Greek Theatre income so that all profits serve the site, supporting its upkeep and operations and rehabilitating Babylon's other visitor services.

The Theatre's ruined gymnasium can act as an interface with the rest of the archaeological site by featuring a shopping bazaar and refreshment stand open year round around in its courtyard (Phase Two). The bazaar can be rented to members of the surrounding communities and cooperatives selling handicrafts and locally-grown products

Subject to the results of a carrying capacity study, the abandoned tourist village behind the Greek Theatre can be demolished during Phase Two. Since archaeological remains probably lie beneath it, removing the abandoned village would preserve unexcavated layers while demonstrating the value and priorities the SBAH places on the patrimony under its stewardship. Other structures along Marduk Street, especially those existing and proposed for the Babylon Conference Center and Nebuchadnezzar sub-areas, are better positioned as food and commercial outlets. The paved area behind the Hammurabi Museum, formerly used as a helicopter landing pad and tourist village parking, will also be removed. Parking lots on either side of the Greek Theatre and the large lot in Visitor Center Sub-Area are sufficient for now.

Museums Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History, Human Interaction with the Physical Environment and Babylon in Recent History

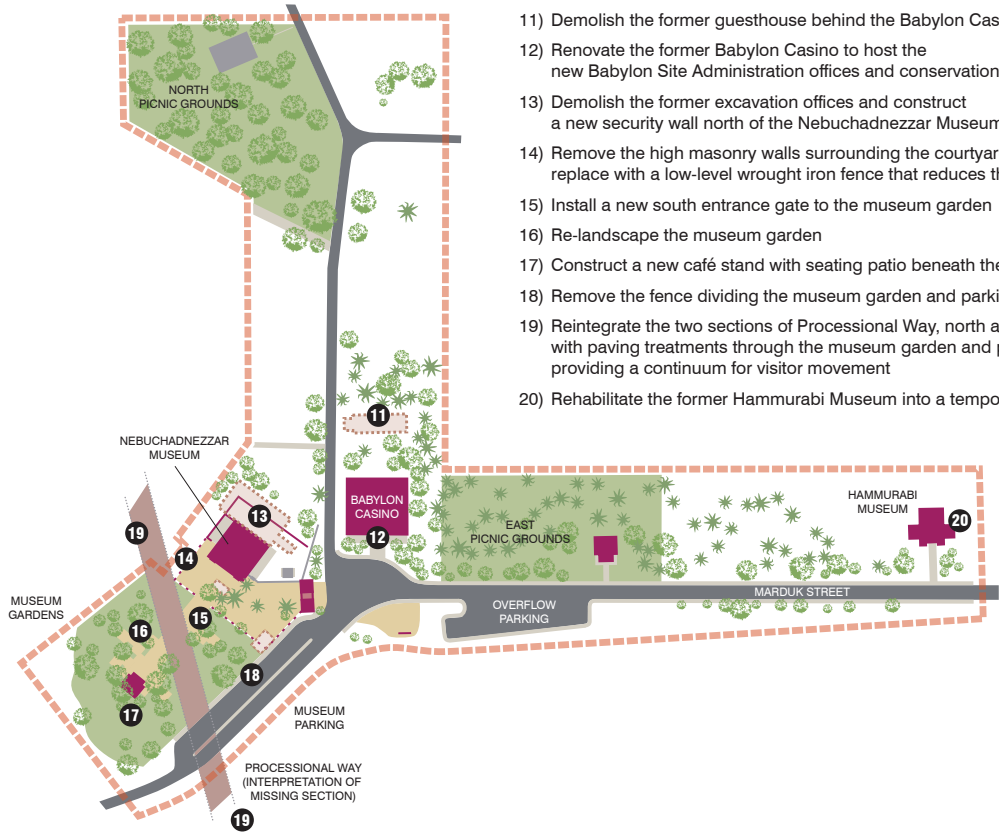
To help clarify plans for this key sub-area, the 'Visitor Facilities and Presentation Plan' map illustrates the interventions phase by phase. In Phases One and Two the Museums Sub-Area will be the hub of visitor facilities at Babylon. While visitor numbers remain low, existing parking lots between the Babylon Casino and temple group will continue to be used. In Phase Three the construction of a new visitor center near Marduk Gate will replace many services, allowing for demolition of redundant modern buildings, but the Nebuchadnezzar Museum, upgraded by the Provincial Reconstruction Team (PRT) in 2010, will remain the heart of this sub-area.

Museums Sub-Area Phase One Interventions



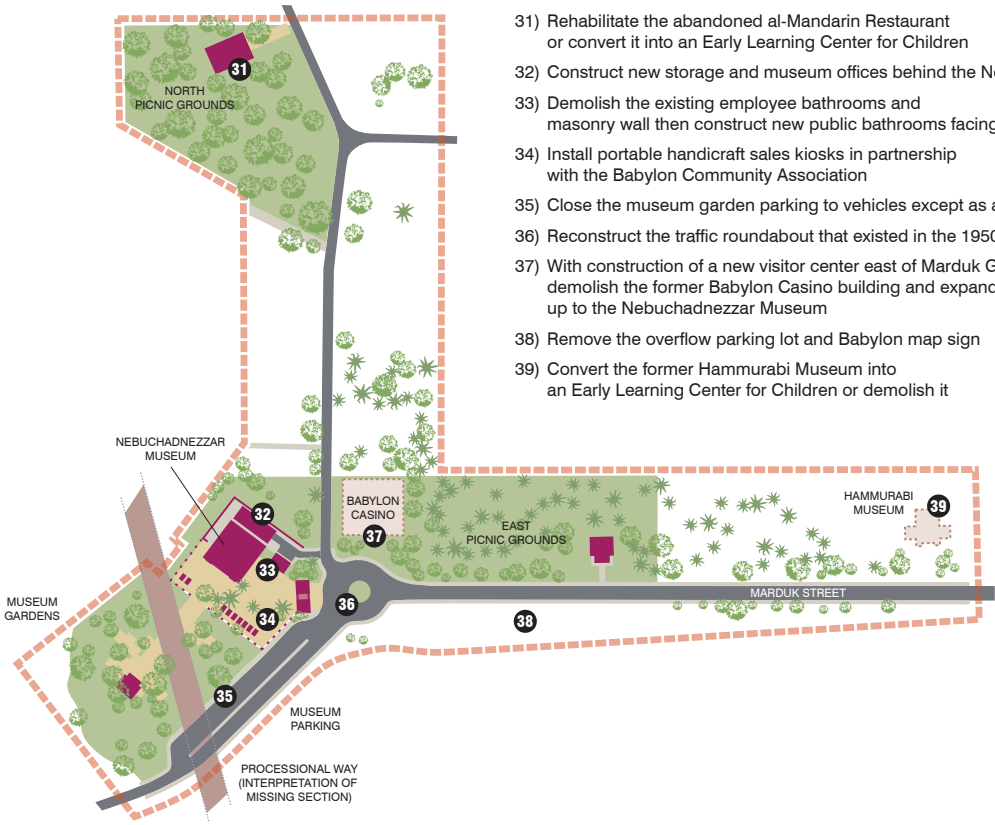
1) Refurbish the north picnic grounds
2) Assess and demolish unnecessary abandoned buildings
3) Rehabilitate the former excavation offices for the new Babylon Site Administration
4) Renovate the Nebuchadnezzar Museum displays and building improvements
5) Demolish ruined buildings west of the Nebuchadnezzar Museum
6) Rehabilitate the courtyard paving and tour guide office in the former souvenir shop, a starting point for guided tours north of Marduk Street
7) Rehabilitate the Ishtar Gate blue replica
8) Remove all ruined buildings in the abandoned museum garden
9) Upgrade the existing Babylon map sign, a starting point for guided tours south of Marduk Street
10) Renovate the existing public bathrooms and adjacent east picnic grounds

Museums Sub-Area Phase Two Interventions



11) Demolish the former guesthouse behind the Babylon Casino
12) Renovate the former Babylon Casino to host the new Babylon Site Administration offices and conservation lab
13) Demolish the former excavation offices and construct a new security wall north of the Nebuchadnezzar Museum
14) Remove the high masonry walls surrounding the courtyard and replace with a low-level wrought iron fence that reduces the size of the courtyard
15) Install a new south entrance gate to the museum garden
16) Re-landscape the museum garden
17) Construct a new café stand with seating patio beneath the trees
18) Remove the fence dividing the museum garden and parking area
19) Reintegrate the two sections of Processional Way, north and south of the sub-area, with paving treatments through the museum garden and parking area providing a continuum for visitor movement
20) Rehabilitate the former Hammurabi Museum into a temporary visitor's center

Museums Sub-Area Phase Three Interventions



31) Rehabilitate the abandoned al-Mandarin Restaurant or convert it into an Early Learning Center for Children

32) Construct new storage and museum offices behind the Nebuchadnezzar Museum

33) Demolish the existing employee bathrooms and masonry wall then construct new public bathrooms facing the courtyard

34) Install portable handicraft sales kiosks in partnership with the Babylon Community Association

35) Close the museum garden parking to vehicles except as a shuttle train stop

36) Reconstruct the traffic roundabout that existed in the 1950s in front of the Ishtar Gate replica

37) With construction of a new visitor center east of Marduk Gate, demolish the former Babylon Casino building and expand the east picnic grounds up to the Nebuchadnezzar Museum

38) Remove the overflow parking lot and Babylon map sign

39) Convert the former Hammurabi Museum into an Early Learning Center for Children or demolish it

During Phase One, information services will initially be provided at the former souvenir shop in the Nebuchadnezzar Museum courtyard. The courtyard will contain an Iraqi Police post and also be used as a mustering station for tour guides. Partnering with an international institution such as the Deutsche Orient-Gesellschaft and Vorderasiatisches Museum in Berlin will enable the SBAH to redevelop the Nebuchadnezzar Museum, currently housing a collection of random, outdated exhibits and models, to offer visitors better background on Babylon. The sub-area's primarily Neo-Babylonian monuments will be the focus for interpretation, but in the context of a larger historical timeline. Site administration offices will be based in the former excavation house behind the Nebuchadnezzar Museum.

In Phase Two part of the Museum courtyard will host portable vendor kiosks to allow local craftspeople to sell Babylon-made products and souvenirs, as in the Greek Theatre gymnasium.

The SBAH will staff an information desk at the temporary visitor center in the vacant Hammurabi Museum. Visitors can reserve guides there and meet them in the Nebuchadnezzar Museum courtyard. As visitor numbers increase, the Ministry of Tourism and Antiquities may wish to partner with the Babil Governorate to provide information services for other sites in the province and region.

The Hammurabi Museum's main space will display an informative video, a large site model (moved from the Nebuchadnezzar Museum), and a souvenir shop will be set up in an adjacent small room. When the Hammurabi Museum is no longer needed as a visitors' center it could be modified to function as a site museum interpreting Babylon's early history as it did in the past, and/or as a children's learning center set up in partnership with regional schools. Alternately, it could be demolished and its grounds excavated.

Also in Phase Two, the Babylon Casino building east of Nebuchadnezzar Museum will be renovated to serve as new SBAH offices, housing site administration on the top floor, a

conservation laboratory in the lower level, and a cafeteria and other staff facilities. Behind the casino the excavation house, an abandoned guesthouse and other buildings will be demolished. Other structures built for the Babylon Festival near Ninmah Temple will be evaluated to determine reuse or demolition. When the new visitor center is completed site operations will move there and the Babylon Casino building will also be demolished.

A blocked doorway in the south wall of the courtyard will be reopened, leading to a shaded green space that will serve as a picnic ground in Phase Two, re-landscaped respecting the presence of archaeology remains. A section of the Processional Way, washed away centuries ago, ran through this green space. Material treatments should be explored with a landscape designer to establish a visual continuum between the sections of Processional Way now exposed in the palaces and temple sub-areas.

Also in Phase Two, the fence line on the south side of the picnic grounds will be removed allowing unobstructed access to parking lots. Following a feasibility study, some of the modern buildings around the picnic grounds (former guard houses and leftovers from Camp Alpha) may be re-adapted to host a refreshment kiosk and a bathroom or new facilities added. Other abandoned and ruined structures will be relocated or demolished.

In Phase Three interventions will focus on removing obsolete modern structures and lowering their visual impact inside the Museums Sub-Area. The Babylon Casino, having served as temporary site administration offices and conservation lab, will be demolished and replaced by a new facility, located near Marduk Gate as part of a consolidated visitor center and administration headquarters.

Improvements made at the Nebuchadnezzar Museum will upgrade its facilities through new, secure storage and offices at the back. In the Museum courtyard commercial kiosks will be permitted, where the Babylon Community Association can arrange handicrafts sales by local villagers.

Vehicular access during Phase Three will be scaled back with parking transferred to the new visitor center at Marduk Gate. Most parking lots will be removed. Instead, visitors will arrive via a shuttle train drop-off at the Ishtar Gate replica and a pick-up station at the nearby Processional Way in front of the museum, both established on a circular route from the Future Visitor Center to Conference Center Sub-Areas.



One architect's interpretation of the Museums Sub-Area after interventions.





Transforming Warsaw Gate (above), built as a temporary military structure, into a permanent display feature presents preservation challenges. Meters of Camp Alpha razor wire litter Warsaw Gate.

Warsaw Gate Sub-Area

Applicable interpretive theme: Babylon in Recent History

The SBAH's decision to preserve and interpret the Warsaw Gate, a watchtower erected for Camp Alpha, reflects a major departure from the traditional focus on Babylon's ancient past, and an expanded vision of the site's historical significance. Given the events that led to its construction, interpreting Warsaw Gate remains a challenge, and its meaning is likely to change in the coming decades as Iraqis evaluate Saddam Hussein's rule and the subsequent invasion and occupation.

Like the remains of historic battlefield sites elsewhere in the world, the Warsaw Gate, erected for temporary use, poses challenges for preservation. The rapidly disintegrating structures must be immediately protected and stabilized until their conservation and presentation can be funded and developed (Phase One). The Warsaw Gate is wedged between the Shatt al-Hillah Riverbank and Lake Saddam sub-areas, both potential nature reserves. Thus, the reflective nature of this area should be emphasized such that visitors here are respectful of the restrictions protecting the birdlife found in nearby Lake Saddam natural resources. Having an interpreted attraction just ten meters from nesting and migratory sanctuaries poses conflicts to resolve before determining interventions for all three sub-areas.

The Warsaw Gate's preservation will benefit from further discussion to judge its representative significance, define conservation methodologies, and determine the consequences of its location. To this end, the SBAH has proposed holding a symposium to define action to be taken at Warsaw Gate, while outlining standards for dealing with post-conflict remains in other cultural heritage settings. The Babylon Sub-Committee of UNESCO's former International Coordination Committee for the Safeguarding of the Cultural Heritage of Iraq could be a valuable contributor to such a symposium.

Palaces Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History, Human Interaction with the Physical Environment and Babylon in Recent History

The varied monuments in the Palaces Sub-Area, including the Lion of Babylon, are mainly bound by proximity, but the ensemble also illustrates an interpretive theme relating to the Neo-Babylonian royal presence that will guide its presentation. In Phase One, uniting these disparate forms through a common vocabulary of path designs, surface treatments, protective rails, lighting and interpretive panels, will set the tone for other archaeological areas. World Monuments Fund is currently developing design options at both the Lion of Babylon and Ishtar Gate. Another aim is to reduce the impact of modern elements, including the demolition of several structures. So far, four modern brick and cement buildings, mainly former guard shacks and excavation storage buildings have been removed. Ongoing interventions tied to US State Department grants will support conservation and presentation improvements at Ishtar Gate and the inner city wall, where work is underway. Additional funds would support further efforts to unite these monuments into a cohesive group as they existed before the 1980s interventions.

In Phase Two, the dilapidated Ninmah Temple, a nearly complete reconstruction, will be rehabilitated to present a recreated Neo-Babylonian temple. Conservation measures will be taken to improve and preserve the ruined Northern Palace, which will be partially re-excavated to present evidence of the original building while limiting access points for visitors. Masonry repairs will take place at the Southern Palace, a modern reconstruction, and its system improved.

In Phase Three, the excavated inner city walls between the two palaces will be conserved. To the immediate north, there are at least four parallel walls, identified by the German excavations when small test pits were dug and later backfilled. These parallel walls will be partially excavated for both study and to clarify the sub-area's presentation to visitors, showing how the two palaces were positioned with walls running between.





A monumental reconstructed entrance to the Southern Palace's inner courtyard (left). The Southern Palace reconstruction (seen at below right), adjacent to the Northern Palace ruins (below left) form the core of the sub-area.

Temples Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History and Babylon in Recent History



Temples Sub-Area aerial view of reconstructed Nabu-sha-Hare Temple (top) and Ishtar Temple (bottom).

This cluster of reconstructions showcases 1980s efforts to present the Nebuchadnezzar-era religious architecture to the public. Decisions regarding Nabu-sha-Hare Temple's conservation, which may be re-exhibited as a partial ruin, will affect the presentation and interpretation of nearby reconstructions as well as the two Babylonian houses and Ishtar Temple. A consistent approach to the ensemble is necessary. Archaeological remains that were not reconstructed in the 1980s were reburied and/or covered with cement tile sidewalks, exacerbating drainage problems.

In Phases One and Two the SBAH will re-examine archaeological records and as part of conservation activities re-excavate the surrounding areas to improve drainage and better present and interpret standing structures for visitors. During this process the SBAH will explore the surrounding buildings, some partially excavated in the 1980s others not, as these may be the houses of priests who served and cared for the temples. If archaeological evidence supports this theory, the remains will be presented for interpretation accordingly. All of the sub-area's building interiors offer space for expanded interpretation through standing signage and other forms of media.

Ziggurat and Amran Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History, Human Interaction with the Physical Environment and Babylon in Recent History

The ziggurat will top many visitors' 'must see' lists and the Shrine of Amran ibn-Ali also attracts pilgrims to this sub-area, which is somewhat remote from other visitation zones. In Phase Two, the secondary visitor route that reaches the ziggurat, ancient bridge and Koldewey's excavation pit at Esagila Temple will be equipped with signage and appropriate hardscape treatments such as walkways and railings that respect the aesthetic of the area's rolling archaeological mounds.

In Phase One this sub-area requires fencing on the west side to stop new building encroachments. Access to and from the Shrine of Amran ibn-Ali will be outside of the Central Administration Area, and begin at the base of the hill where a new parking lot will be installed on the outskirts of al-Jimjmah (Al-Jimjmah Sub-Area). Of the two current roads to the site, the western one will be demolished and the other used for handicap parking. The Central Administration Area perimeter fencing will exclude the shrine, its entry and a cemetery to its south used by residents from al-Jimjmah.

Since 2012 the Shi'a pilgrimage associations and endowment have added several new buildings at the Shrine of Amran ibn-Ali, where such expansions should be restricted. All new structures outside the shrine's perimeter wall, mainly portable housing units, a two-story shelter, and paved surfaces should be removed in Phase One. The new temporary security checkpoint relocated in front of the compound would be an exception. Failure to contain the growth of the shrine could jeopardize Babylon's WHS nomination.

Tell al-Jimjmah Sub-Area

Applicable interpretive themes: Human Interaction with the Physical Environment and Babylon in Recent History

This sub-area requires immediate fencing in Phase One on the west, south and east sides until the al-Jimjmah Road can be relocated west of the site and re-connected to the rest of Babylon (*see* Amran Entrance Corridor). Previously excavated areas must be documented, cleaned, and reburied until the site can be further investigated, and if deemed appropriate, presented to the public.



One of two Babylon Conference Center hotels.



The privately operated conference center restaurant caters to special events.

Conference Center Sub-Area

Operated by the Babil Governorate, the conference center's large restaurant, a sub-contracted private operation, hosts wedding parties, governorate guests, families on the weekend and university student groups after exams. The governorate-run hotels in the complex cater mainly to visiting government employees and honeymooners (as per an al-Hillah tradition).

The Babylon Conference Center parking lot will be used once the large metal shed erected there in 2012 is removed in Phase One. The shed was built for Babil Governorate functions, including trade shows, inappropriate events for Babylon that would be better staged and supported in al-Hillah.

Pending the results of a feasibility study, the SBAH envisions adapting part of the Conference Center buildings to create an international research and training center in a campus-like setting. The research center would include a conservation science laboratory to facilitate the SBAH's nationwide studies. The existing restaurant could serve research staff and the public. The conference center's two rundown hotels could be renovated as accommodations for the research center but should still retain some aspects which cater to local uses such as wedding functions. Unused buildings in the area would be demolished.

Future Visitor Center Sub-Area

Applicable interpretive themes: Babylon's Significance in Human History, Human Interaction with the Physical Environment and Babylon in Recent History

The visitors' center scheduled for Phase Three will replace the former Hammurabi Museum building and be located east of Marduk Gate, adjacent to the site's main entrance and west of the utilities pipelines buffer zone. Historic sites worldwide feature visitor centers that can serve as examples. Utilizing alternative energy sources such as solar power in a manner sympathetic to Babylon's traditional, semi-rural context should be considered.

Visitors will arrive, park, and be greeted by staff at an information desk, where directions, tour and transport options will be offered. A site museum will serve to introduce Babylon to visitors

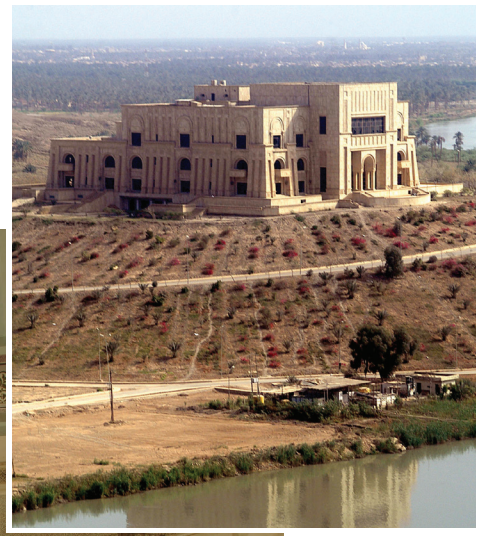
before beginning their tour. A bookshop will sell a variety of Babylon-related publications and a full service cafeteria and coffee shop will be open during visitation hours. Once the visitor's center is operational, parking lots west of Marduk will be utilized for special events only. Automobile and bus parking will shift to the large existing lot north of the new visitor center.

In Phase Three, to lessen the impact of groundwater, the section of the Hawliyah Canal adjacent to the western section of the inner city wall will be drained, its concrete basin removed and its path left as a dry moat. WMF discussions with CEB in May 2013 resulted in a proposal to leave the canal sections on the north and south connected to Lake Saddam and Lake Tammuz.

Former Palace of Saddam Hussein Sub-Area

Applicable interpretive themes: Human Interaction with the Physical Environment and Babylon in Recent History

The former palace of Saddam Hussein will remain vacant in the near term. Pending further assessments, its adaptive reuse is a low priority until Phase Three. Extravagant proposals for the palace's rehabilitation have been circulated, including its conversion to a regional museum, a restaurant, social club, and entertainment complex. It has also been suggested that it be preserved as a ruin. With so much of Babylon's historic remains at risk, a costly rehabilitation of the Saddam Palace raises numerous issues, including the message it would convey to citizens and the larger international audience regarding the state's priorities in safeguarding cultural assets. Rather than budget millions for the palace's rehabilitation, which might benefit a handful of contractors and their facilitators, such funds would be more constructively dedicated to Babylon's many urgent conservation needs. The Palace of Saddam Hussein in fact derives its value from its archaeological surroundings, an endangered heritage that is the state's duty to preserve and protect.





Saddam Hussein's former palace on Mount Saddam overlooking the Shatt al-Hillah, and the palace's reception room.

Risk Preparedness

(See *'BM14, Risk Preparedness'* map)

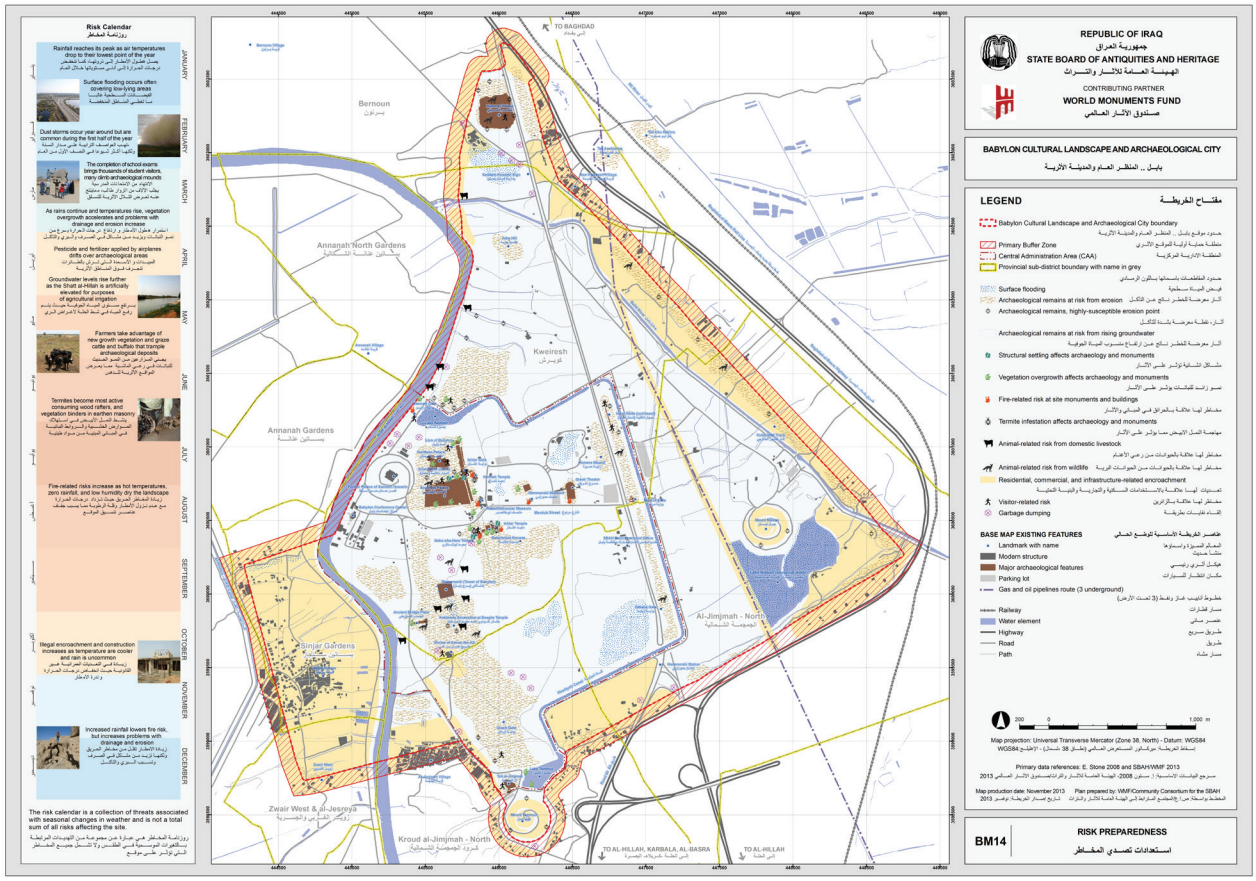
Preservation practice involves developing a risk map for Babylon that identifies and prioritizes dangers to the overall site as well as to individual structures. Along with site-specific conservation manuals, this GIS-based map forms an integrated data set to guide interventions and future risk protection efforts. While risks to the archaeological site are the current focus, other operational concerns can be incorporated into the map as more information is collected. This map represents a first effort to a comprehensive risk management plan for the site.

In order to minimize risk factors at Babylon, the SBAH, Babil Governorate, al-Hillah municipality, and the communities within the site will be obliged to cooperate. The proposed inter-agency coordinating committee can act in concert with the appropriate ministries and local agencies responsible for protecting assets and providing services at Babylon while also petitioning international organizations for expertise. The International Committee of the Blue Shield (ICBS) should be consulted, as it sets standards for disaster preparedness and its member organizations ensure enforcement of the *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (The Hague Convention of 1954).[80]



Former Baghdad-al-Basra Highway and southeast inner city walls archaeological area after heavy rains.

80 The Hague Convention of 1954, *Convention for the Protection of Cultural Property in the Event of Armed Conflict,* http://portal.unesco.org/culture/en/ev.php-URL_ID=35744&URL_DO=DO_TOPIC&URL_SECTION=201.html. ICBS consists of five non-governmental organizations working in this field: the International Council on Archives, www.ica.org; the International Council of Museums, www.icom.museum; the International Council on Monuments and Sites, www.icomos.org; the International Federation of Library Associations and Institutions, www.ifla.org; and the Co-ordinating Council of Audiovisual Archives Associations, www.ccaaa.org.



Map BM 14 of the Babylon Site Management Plan provides an overview of the risks to Babylon.

A summary of the risks to Babylon, and recommendations for their management:

Surface Flooding

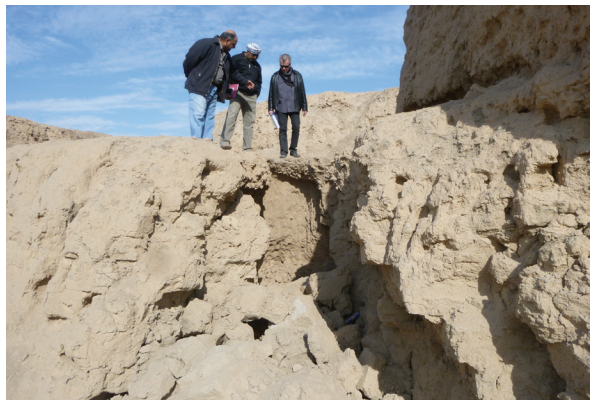
Owing to Babylon's high water table and poor drainage, occasional heavy rains may cause partial and temporary flooding affecting the site's built fabric. A strategy for dealing with the more remote risk of high flooding entails further study and recommendations by CEB and other local entities, including the Ministry of Irrigation who is responsible for the Shatt al-Hillah water control systems. The inter-agency coordinating committee should: 1) learn more about Ministry of Irrigation policies regarding Shatt al-Hillah levels and its irrigation network, 2) use topographic mapping to identify high flood-risk areas and 3) define procedures for lowering the groundwater levels within the site.

Weathering and Pollution

After centuries underground, earthen remains were excavated and left exposed to atmospheric conditions without maintenance or protection. Rain, wind, and dust storms caused uniform, differential or punctual surface erosion affecting the bases and tops of structures. Windblown sand erosion caused abrasion, crumbing, and granular disintegration of brick units. Disintegration and collapse of mud-brick units have also occurred due to sharp variations in temperature and humidity. Undercuts at the bottom of the walls are most often caused by rainwater run-off and rainwater splash from the ground at wall bases coupled with humidity rising from the soil. The inner city wall is the priority site suffering most from exposure, particularly the west half. On the

east half, a modern capping of fired brick fortified with cement exacerbates weather damage by concentrating rainwater drainage flows that have washed away sections of traditional masonry.

Airborne chemicals and particulates also damage the site's built fabric. At Babylon, brick kilns have long polluted the environment while detracting from the visual setting. In the 1980s two kilns inside the site were closed. The one remaining in operation within the primary buffer zone at New Kweiresh was closed in 2012.



Flash floods erode the inner city wall between the palaces.

Drainage and Erosion

Successive archaeological excavations have changed the site's topography, channeling and pooling water, causing infiltration, the largest case being German explorations at Esagila Temple north of the Shrine of Amran ibn-Ali. Heavy rains wash away the soft accumulations of archaeological strata at the temple site, Summer Palace, and inner city walls. This is most obvious in gullies and the loss of material within structural cores.

Ad hoc drainage systems added to the site during the twentieth century damaged many structures too. The piping found between the Babylonian houses serves to drain water from flat roofs onto flat, relatively non-porous modern surfaces. The water then either settles or overflows back into building foundations. At the inner city walls, where modern designs and materials contribute to the drainage problem, there is no outlet for runoff and large vertical gullies cut deep into the unbaked mud-brick masonry.

Despite relatively low amounts of rainfall, many archaeological remains and reconstructions will continue to deteriorate and collapse. The BSMP recommends a policy of backfilling and mitigating actions where that is not possible, the exact solution dependent on a given situation. For standing structures improved localized drainage systems are a priority.



Capillary action at Ishtar Gate turns brickwork into powder.

Rising Groundwater

Damage to Babylon's resources relates primarily to the composition of building materials and their relative porosity in combination with rising damp from the water table. Capillary action affects most of the foundations and wall cores, whether on a cyclic, temporary or permanent basis. The moisture carries salts that cause deterioration. Salt crystallization and its migration into the lower portion of walls chemically react to wash away masonry components, especially within specific micro-climates, and where ventilation reduces evaporation. The results can be seen in efflorescence, disaggregation, flaking, blistering on surfaces, and the visible loss of masonry units and coatings. The problem affects all parts of the site and appears most obvious in the lower brick layers at Ishtar Gate and Nabu-sha-Hare Temple.

Structural Settling

Mud brick's low tensile strength and brittleness makes it sensitive to settlement, particularly at the foundation level. The condition is exacerbated by pressures and weaknesses in homogeneity caused by groundwater saturation and backfilling. The results are visible in the displacement of masonry through settlement of walls (cracking, bulking, plumpness, and shifting of vertical planes) and in severe cases, total collapse.

Termite Infestation

Termites seriously threaten the safety of structures at Babylon. In the past, wood elements were treated and buildings regularly sprayed. The 2003-2004 military occupation of the site halted the annual treatments, which, owing to a lack of funds were never resumed. Consequently, the roofs of several reconstructed Neo-Babylonian sites began to collapse. The temples of Nabu-sha-Hare, Ishtar and Ninmah require immediate repair, and annual inspections and treatments must be budgeted for and resumed.



Termite infestation is often related to poor drainage.

Vegetation

One of the Future of Babylon project's early tasks was to remove vegetation from priority sites. During the last twenty years, vegetation has flourished on and around archaeological remains owing to a lack of maintenance; shrubs cover large areas and mature palms and other trees grow inside monuments. Penetrating roots have provoked punctual degradation, displacement, and disruption of masonry structures and their foundations. Vegetation also creates micro-climates that foster humidity and further growth, especially in confined, shaded and unventilated spaces, contributing to the damage due to rising damp. Routine maintenance is required, and this responsibility will fall to the new conservation department recommended in the BSMP.

Fire-Related Risks

Although archaeological reconstructions contain wood ceilings, there are currently no fire-detection or -suppression systems at those locations. Fire extinguishers are presently stored only at SBAH offices, the two existing police stations and at the Babylon Conference Center. The nearest fire station is on Road 60, approximately four kilometers south of the site's center. Smoking is currently allowed on-site, with few adequate receptacles for related waste; given the dry summers, the potential for brush fire in some areas is high. A Fire Prevention Officer from al-Hillah in cooperation with the inter-agency coordinating committee can help set regulations to be enforced by security and site personnel.

Visitor-Related Risks

While large numbers of visitors have yet to return to Babylon, the site is open to the public with little control of movements, resulting in damage to some structures. Uncontrolled visitor access has led to the erosion and collapse of remains from trampling as well as vandalism (broken building elements and graffiti) and looting (theft of cuneiform-stamped bricks). Large groups of students invade the site on school holidays, climbing exposed archaeological remains, Ishtar Gate, the inner city wall, and mounting the back of the Lion of Babylon.

At present, looting appears to be minimal as the site is secured by police and in some cases, local residents, but there is evidence it has occurred



Visitors routinely climb the Lion of Babylon, which is often left unguarded.

near the Summer Palace and Amran Hill where access must be further restricted and security improved.[81] Elsewhere visitors often take pieces of cuneiform stamped fired brick as souvenirs; several have been caught by SBAH site guards.[82] In keeping with antiquities' protection laws, the SBAH must formalize and post regulations preventing theft and damage, and instruct security staff to detect and handle infractions. Other sections in this section describe the need for perimeter fencing around the Central Administration Area and Summer Palace, and barrier and restricted area improvements in the presentation of sites.

Armed Conflict

The *Convention for the Protection of Cultural Property in the Event of Armed Conflict* should be considered part of Babylon's risk mitigation strategy. Given the results of the site's recent military occupation, these principles were clearly ignored by signatory countries. The SBAH and Ministry of Tourism and Antiquities should further dialogue with the international organizations that safeguard monuments, including UNESCO and the members of the International Committee of the Blue Shield. Nominating Babylon to the World Heritage Site list will bring additional international support should it once again be placed at risk.



Housing foundations being laid in New Kweiresh.

Residential, Commercial and Infrastructure-Related Encroachment

Illegal encroachments pose a significant risk to Babylon's preservation and must be monitored to track and predict development trends. Updated ownership data (*See* BM02, 'Existing: Property Ownership and Plots' map) and proposed zoning regulations (*See* BM10, 'Proposed: Land Use' map) provide the SBAH and other authorities a framework to control illegal incursions into the site. The boundary and buffer zone regulations detailed earlier in this section provide guidelines on enforcement policies that should be met through a cooperative, pro-active relationship between the SBAH, Babil Governorate, municipal administrations, and the Iraqi Police.

State infrastructure projects have also damaged the site, beginning with the 1920s' installation of a railway line through Babylon. Three oil and gas pipelines run through the site, the most recent installed in 2012. Malfunction, such as the natural gas explosion that occurred in the late 1980s, could cause irreversible damage to archaeological remains alongside the risks of leakage and soil contamination. A monitoring and maintenance plan should be prepared and implemented by the Ministry of Oil and Babil Governorate, those responsible for the 2012 installation. Emergency plans with local public service departments should be developed to protect the site and people living near the pipelines. Regulations restricting construction in the 300 meter pipeline buffer zone must be strictly enforced.

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81 Following the 2003 occupation, looting was less a problem at Babylon than at other Iraqi sites, partly because of its use as a military base. Nonetheless, stories suggest the camp did provide a customer base for the local citizenry to peddle found artefacts. Looting damage related to the occupation is detailed in UNESCO, *Final Report on Damage Assessment at Babylon*.

82 WMF interviews with SBAH site guards Ghoneim Dulani and Meky Farhood, 2012.

Illegal Dumping

Illegal dumping of refuse and toxins inside the boundaries is a growing problem. Deficient public services at Bernoun forces residents to dispose of household and commercial garbage along the village entry road; the Babylon Conference Center dumps its garbage near the Shatt al-Hillah, and chemical waste is dumped south of Amran Hill. Fencing the Central Administration Area will curb dumping there, but the Ministry of Tourism and Antiquities must take action to ensure that the Iraqi Police enforce the site boundary regulations, and that the Babil Governorate issues fines and if necessary, arrests offenders.



Garbage dumping in Sinjar village in Babylon.

Looting

Unlike many other Iraqi archaeological sites, in modern times Babylon has not suffered the same levels of looting. This was partly due to a security presence both during the Saddam Hussein and Coalition Forces occupation periods. Still, the Nebuchadnezzar Museum, like several other regional museums, was robbed in 1995. Babylon's modern visitor facilities were vandalized and looted after the fall of the Saddam Hussein regime, and thereafter a thriving underground black market on artifacts developed with local parties selling to soldiers during the Camp Alpha period. Today, despite a constant Iraqi Police presence and the watchful eye of SBAH site guards, episodes of visitor theft of cuneiform brick fragments are not unusual, and recently a collection of Ishtar Gate glazed brick pieces was stolen from a locked museum storeroom. The SBAH has tried to collect artifacts when they are found and put them into safekeeping. As noted earlier in this section, a number of recommendations would seek to improve inter-agency communication and capabilities.

Animals

Uncontrolled movement of grazing livestock causes surface degradation, and wild animals burrow in gully washes in mud-brick masonry, undermining the structures' integrity. These activities are not often immediately apparent but their impact can be sudden and severe. Within the site, depressions left from previous excavations are now overgrown hollows where livestock buffalo trample brick remains. Exploiting crevices caused by erosion, animal burrowing was problematic at the inner city wall until the Future of Babylon project temporarily in-filled holes and blocked access. Further action by the SBAH must take place through frequent site inspections, repairs, and fencing.



Water buffalo grazing at Amran Hill.



SECTION IV

Action Plan

The Action Plan outlines and prioritizes the steps needed to both activate the site management plan and seek WHS recognition for Babylon. It does not include all items recommended in Section III. Section III should be referenced in order to obtain fuller descriptions of these priorities as well as secondary concerns, which provide a more comprehensive list of management objectives and strategies. The site management plan's viability is integral to WHS inscription, as stated in UNESCO's Operational Guidelines.[1]

The successful implementation of the BSMP requires effective and transparent communication, a solid management structure, stronger existing affiliations, and the development of new, sustainable partners within a revised and enforceable legal framework. Long-term implementation relies on strengthening the capacity of stakeholders and increasing their participation as well as increasing the ability to source funding. With national partners on board, Babylon can attract international support ranging from in-kind contributions to large-scale funding and expertise. Many tasks in the priority list seen below can be funded as stand-alone projects contributing to an overall whole.

1 UNESCO, *Operational Guidelines for the Implementation of the World Heritage Convention*, (Paris: World Heritage Centre, July 2012), paragraphs 96-118, 25-28. http://whc.unesco.org/archive/opguide12-en.pdf

Stabilization of the Lion of Babylon's concrete encasement was a necessary conservation intervention and opportunity to improve the statue's presentation.

Activities During Phase One, 1–5 Years

Priority Tasks for Enhancing Human Resources:

- Reorganize the existing site management framework by proposing the new structure of administration independent of the SBAH Babil Inspectorate and reporting directly to the Director General of Excavation and Investigations and the Minister of Tourism and Antiquities. This includes nomination of a Babylon Site Manager.
- Invest in advanced training for the new Babylon Site Manager and department heads.
- Compose an operations manual respective of the new management structure.
- Temporarily locate site and museum operations in the old excavation house in the Museums Sub-Area.

Priority Tasks for Developing Cooperation and Partnerships:

- Form an inter-agency coordinating committee for Babylon.
- Increase training for Iraqi Police and SBAH site guards to better secure the site and respond to visitor needs.
- Establish bi-monthly meetings between the inter-agency coordinating committee, the Babylon Community Association (BCA), and the Babylon Tourism Business Contact Committee (BTBCC) to build stakeholder partnerships and help to seek continued support for Babylon's preservation.
- Register the BCA and Friends of Babylon (FOB) as official non-government organizations to serve the greater interests of Babylon. With legal status secured, set about appointing a board of operations, organization by-laws and fundraising policies and activities.
- Expand dialogue with community representatives at Sinjar and al-Jimjmah through the BCA and explore shared concerns and problems between residents and the inter-agency committee. Present a list of priorities to the Ministry of Tourism and Antiquities and Babil Governorate officials for approval. Pursue Government of Iraq and Babylon Investment Council financial and implementation assistance; when funds are not available obtain their consent and support to seek outside help.
- Partner with the BCA and experts in social development to structure community incentives around education, infrastructure, and employment.
- Support the re-establishment of International Council on Monuments and Sites in Iraq (ICOMOS-Iraq) using Babylon as a case study for assistance and cooperation.
- Request assistance and formalize an agreement with the Vorderasiatisches Museum in Berlin and Deutsche Orient-Gesellschaft to restore SBAH Babylon archives. Encourage their participation in remodelling exhibits at the Nebuchadnezzar Museum as first steps to rebuilding a working partnership at Babylon.
- Recruit the British Museum to improve visitor programming connected to the Nebuchadnezzar and Hammurabi museums.
- Establish a memo of understanding between the SBAH and CRAST for research exchange and training support regarding GIS database development for Babylon.

Priority Tasks for Reinforcing the Legal Framework:

- Distribute the approved BSMP to the appropriate local authorities including the Hillah planning authorities.
- Refine the boundary and buffer zones with land survey technology tied to known point benchmark measurements to produce legally recognized measurements.
- Following the land survey, through the inter-agency coordinating committee build consensus between the SBAH and Babil Governorate on the boundary designation resulting in a signed, certified decree recognizing Babylon's official boundaries and regulations protecting the site. Gazette the boundary and buffer zones with their associated regulations within the Ministry of Justice's official registry publication *Iraqi Facts* (Waqaa al-Iraqiyya). Once gazetted the documentation becomes law.
- With legal status secured, mark the boundary line with sunken concrete beacons and place signage along the boundary. The primary buffer zone will also be marked with concrete beacons at extended intervals. The near and extended buffer zones will be mapped but not physically marked. As these areas encompass private and state-owned land, individual owners will be notified and supplied with maps by the inter-agency coordinating committee.
- As part of registering the site boundary and its definitions, take steps to legalize land use zoning with the relevant government agencies to control private development inside the site.
- The inter-agency coordinating committee will work with city planning offices to integrate BSMP policies into the master plan for Hillah and with the Mahawil District regarding buffer zones outside of the Hillah master plan mandate.
- Install fencing for the Central Administration Area to demarcate the visitor area, and around Summer Palace Sub-Area to prevent illegal entry.
- Begin acquiring all private properties located inside the Central Administration Area and continue until completion in Phase Two.
- Settle question of authority over the Greek Theatre, Babylon Conference Center, and former Palace of Saddam Hussein between the Ministry of Tourism and Antiquities, the SBAH, and the Babil Governorate. Signed memos of understanding should be produced for each facility defining governmental authority, usage, and access.
- Designate legal identification for the Shatt al-Hillah Riverbank Preserve with the Babil Governorate and other governmental entities through a signed memo of understanding.

Priority Tasks for Defining a Site Planning Methodology:

- Define and document recommendations for each zoned sub-area use including base site plans, full drawing sets of existing structures, bills of quantities, and budget outlines. This will continue in Phase Two.
- Conduct a condition assessment of modern buildings before rehabilitation or demolition.
- Undertake a commercial real estate investment and management plan for concession-based properties in conjunction with the Ministry of Tourism and Antiquities, the SBAH, Babil Governorate, and the BTBCC. Seek external assistance from UNESCO and its World Heritage and Sustainable Tourism Programme (WH+ST) through the expansion of prior studies of the site. With the exception of the conference center and the Greek Theatre, many properties can be operated on a small scale, possibly by local residents.
- Begin demolition of modern commercial structures ruled obsolete.
- Compile an updated property ownership database and map based on the BSMP study.
- Develop the proposed Date Palm Conservancy Area to protect views and vistas by curbing development and preserving habitats for biodiversity.

Priority Tasks for Protecting and Conserving:

- Complete baseline documentation, conservation plans, drawing packages, and stabilization works for Ishtar Gate, Nabu-sha-Hare Temple, the inner city wall, Ninmah Temple, and Ishtar Temple.
- Upgrade presentation of the Babylon Lion as a pilot project for defining hardscape improvements throughout the Palaces and Temples sub-areas.
- Complete conservation activities at Ishtar Gate and Nabu-sha-Hare Temple as per BSMP intervention measures.
- Undertake basic conservation measures at the inner city wall and reintegrate it with Ishtar Gate in the Palaces Sub-Area.
- Protect the Warsaw Gate Sub-Area until funding is available to exhibit it in-situ or relocate it elsewhere in the Central Administration Area. Install perimeter fencing and cover fragile remains provisionally until conservation actions are defined. Remain sensitive to the proximity of birdlife found in nearby Lake Saddam.

Priority Tasks for Managing Natural Resources:

- Designate nature areas at the Lake Saddam and Lake Tammuz preserves and take the necessary steps to protect them with fencing, signage, and programming.
- Engage a nature conservancy organization to carry out a study of the natural ecosystems of this sub-area and nearby Lake Saddam Sub-Area before decisions of preservation and interpretation are decided.
- Conduct additional biodiversity assessments seasonally to survey seasonal migrations and wildlife movement.

Priority Tasks for Managing Water Resources:

- Form an exploratory committee to address groundwater issues at Babylon. The committee may include SBAH representatives, community leaders, farmers, and members of the Babil Governorate in consultation with hydrologists. International expertise could be consulted to define large-scale but viable methods of reducing groundwater and protecting archaeological remains.

Priority Tasks for Improving Infrastructure:

- Undertake a comprehensive carrying capacity study of existing infrastructure to estimate current shortcomings and future needs through the BTBCC and under UNESCO's WH+ST guidelines. The study will provide a baseline for designing infrastructure and visitor support improvements at Babylon.
- In the Central Administration Area upgrade existing electrical, lighting, fresh water and sewage systems in partnership with the Babil Governorate and associated ministries by centralizing systems parallel to and under Marduk Street.
- Construct two smaller pullover-parking areas proposed at the Northern Entrance Corridor for the Summer Palace and Ziggurat and Amran Sub-Area.
- Remove the large metal shed erected in the parking lot of the Babylon Conference Center.

Priority Tasks for Interpretation and Presentation:

- In partnership with the Babil Governorate, upgrade the Greek Theatre into a regional complex with facilities to host large crowds.
- Undertake a study of existing structures in the Museums Sub-Area, and where called for, reuse or demolish partially ruined and ruined buildings.
- Study programming for the Nebuchadnezzar and Hammurabi museum buildings in the context of a larger interpretation plan for the site. As part of this the Nebuchadnezzar Museum will be upgraded with new displays and interpretation along a narrative constructed around archaeological investigations undertaken at Babylon.
- Remove all military remains deemed unnecessary for interpretation from the Central Administration Area.
- Upgrade and reuse the existing parking lot between the former casino and temple group in the Museums Sub-Area while visitor numbers remain low.
- Install the primary visitor route for visitors with surface treatments and interpretive signage.
- Re-organize interpretive programming for increased tourism at Babylon and require professional licensing for site guides.

Priority Tasks for Risk Preparedness:

- Secure the boundaries of the Central Administration Area with Iraqi Police vehicular patrols along the site boundaries and emergency response.
- Through partnerships with government experts and outside consultants prepare a comprehensive risk preparedness strategy including refining related BSMP maps to identify procedures for dealing with flooding, armed conflict, fire, and other related disasters.
- Implement tighter control of visit movement in archaeological areas through enhanced access restriction systems and better site guard policing.
- Consult with a fire prevention officer from al-Hillah to set emergency procedures, regulations, and install adequate fire prevention equipment for all facilities in the Central Administration Area. This should be done in cooperation with the inter-agency coordinating committee.
- Revive seasonal inspections and treatments for termites at all reconstructed monuments.
- Establish and budget for routine inspection and maintenance programs for all archaeological areas and monument reconstructions, funding must support a vegetation control programming as well.
- Begin developing a comprehensive risk management planning strategy.

Activities During Phase Two, 6–11 Years

Priority Tasks for Enhancing Human Resources:

- Renovate the Babylon Casino to become the new SBAH Babylon management headquarters and conservation laboratory. With renovation complete, demolish the excavation house behind the Nebuchadnezzar Museum.

Priority Tasks for Developing Cooperation and Partnerships:

- Develop capacity building opportunities through training programming from UNESCO, ICCROM, and ICOMOS in relation to Babylon's WHS nomination.
- Secure additional funding for restoration and conservation activities at priority sites from other international sources with the goal of moving those sites stabilized during Phase One into restoration.

Priority Tasks for Reinforcing the Legal Framework:

- Designate the Date Palm Conservancy Area boundaries with local farmers, governmental, and academic experts in Phase One will be followed by legal confirmation with the Babil Governorate and the inter-agency coordinating committee in Phase Two.
- Implement incentive programs for inhabitants inside the boundary and primary buffer zone.

Priority Tasks for Defining a Site Planning Methodology:

- Complete purchase of all privately-held property inside the Central Administration Area and regulate boundary and buffer zone uses.

Priority Tasks for Babylon's Archaeological Potential:

- Based on survey and assessments undertake a study of where reburial of exposed archaeology might occur. Detailed documentation and study of these remains must preclude any intervention including reburial.

Priority Tasks for Protecting and Conserving:

- Extend intervention policies used at Nabu-sha-Hare Temple to adjacent reconstructed structures in the Temples Sub-Area.
- Develop and implement a comprehensive conservation plan to integrate Warsaw Gate with other visitor attractions, interpretive programming, and routes.
- Complete conservation activities at Ishtar and Ninmah temples plus advanced interventions at the inner city wall.

Priority Tasks for Managing Natural Resources:

- Demarcate Shatt al-Hillah nature trails along both riverbanks, one connecting Road 60 to Annanah and on the east from the Babylon Conference Center Sub-Area to the Summer Palace Sub-Area and Northern Entrance Corridor.
- In partnership with local environmental NGOs, coordinate with governmental sectors to enforce existing laws restricting construction, encroachments, dumping of garbage and toxic waste, free-roaming livestock, agricultural expansion, hunting and fishing at Babylon.
- Work with these same NGOs and government agencies to develop new regulations protecting Babylon from other threats identified in the biodiversity survey and subsequent assessments.

Priority Tasks for Managing Water Resources:

- With the water task forces' findings, define future groundwater control policies for Babylon. Draft documentation necessary for petitioning financial and professional expertise to alleviate the impact of groundwater.
- Conduct studies to measure agricultural water usage, identify preferred low consumption crops and investigate methods for improving agricultural output in archaeological sites in cooperation with Babil University, the Ministry of Irrigation and the Babylon Community Association.

Priority Tasks for Improving Infrastructure:

- Halt installation of open-end cesspools as listed in the boundary and primary buffer zone restrictions.
- At the Amran Entrance Corridor reroute the Jimjmah Road to unify the archaeological site.
- Improve the Bernoun Road with a traffic roundabout placed at the intersection of the primary site entry road south of the Summer Palace.
- Improve the East Babil River Road with a new bridge running over the river and taking into account the proposed Nissan Fitness Park.
- Generally improve and widen the Annanah-Sinjar Road.
- Upgrade site entrances at the North Entrance Corridor and South Entrance Corridor.
- In conjunction with implementation of the Hillah Master Plan, begin feasibility studies for activating a ferryboat service between al-Hillah, Babylon, and nearby communities.

Priority Tasks for Interpretation and Presentation:

- Rehabilitate the picnic area in front of the Nebuchadnezzar Museum and its access point from the Museum courtyard. Adapt existing structures as a refreshment kiosk and an outdoor café or construct new facilities. In the courtyard establish portable souvenir kiosks.
- Reopen the Hammurabi Museum as a visitor orientation center.
- At the Greek Theatre, adaptively reuse the adjoining gymnasium as a refreshment stand and shopping bazaar.
- Employ the large existing parking lot west of Marduk Gate as visitor numbers increase.
- Remove the paved area behind the Hammurabi Museum, formerly used as a helicopter landing pad.
- Demolish the abandoned tourist village in the Greek Theatre Sub-Area.
- Establish a community microbus terminus and pilgrimage parking area for the Amran ibn-Ali shrine in a large new lot north of al-Jimjmah.
- Initiate shuttle train service to transport visitors along Marduk Street, the main east-west access road. In parallel, visitor vehicle access will be curtailed.
- Construct hardscape treatments and surfaces for the secondary visitor routes. Limited signage will also be installed.
- Investigate digital media opportunities for interpreting and presenting Babylon to the public.
- Shift site guide duties from SBAH staff to training and licensing local community residents and members of the Friends of Babylon.
- Produce a draft concept in partnership with international experts for a new visitor center. Circulate design proposals to government stakeholders for funding and partnership.
- Conduct a feasibility study to determine realistic reuse options for the former palace of Saddam Hussein and surrounding structures in the sub-area.

Priority Tasks for Risk Preparedness:

- In cooperation with the Ministry of Irrigation use topographic mapping to identify high flood-risk areas and set flood zone emergency guidelines with associated roles and responsibilities for government agencies.
- Halt livestock grazing inside the Central Administration Area and all vulnerable archaeological zones.
- Enforce the site boundary regulations and coordinate with the Iraqi Police towards eliminating illegal trash dumping inside the boundaries.
- Complete the comprehensive risk management strategy and begin implementation.

Activities During Phase Three, 12–20 Years

Priority Tasks for Enhancing Human Resources:

- Convert the Babylon Conference Center to a national research and training center for SBAH staff, visiting scholars, and technicians.
- Relocate management headquarters to new visitors center

Priority Tasks for Defining a Site Planning Methodology:

- Purchase selected private properties outside of the Central Administration Area to protect viewsheds and increase public access to Babylon, such as development of Nissan Park. (*See* 'Priority Tasks for Managing Natural Resources' also under Phase Three)

Priority Tasks for Babylon's Archaeological Potential:

- Restart new excavations at locations to be determined through risk assessments and further scientific study based on SBAH priorities.
- Excavate and conserve the remaining sections of the inner city wall between the palaces to unite the ensemble into a holistic presentation.
- Open the former sites of demolished buildings in the Museums Sub-Area to archaeological investigation following the Babylon Conference Center's renovation as a research center and the construction of a new visitor center.

Priority Tasks for Protecting and Conserving:

- Rehabilitate the southern palace complex and conserve the northern palace ruins for improved visitor experiences.
- Stabilize and conserve newly excavated sections of the inner city walls between the palaces.
- Based on survey and assessment priorities undertake stabilization and conservation measures of exposed archaeology and heritage sites deemed important for further scientific study and visitor presentation such as the ancient bridge piers, the Saddam Hussein portrait sign, and Summer Palace Sub-Area.

Priority Tasks for Managing Natural Resources:

- Extend the nature trail system established in Phase Three to other designated routes inside the site boundaries.
- Construct Nissan Park, a nature preserve and fitness area, in the southeast corner of the site boundaries.
- Increase environmental awareness in local villagers by designing and implementing outreach programs that promote responsible stewardship of natural resources in cooperation with local NGOs. Raise government and public stakeholders' awareness through involvement in Babylon conservation programs.

Priority Tasks for Managing Water Resources:

- Implement groundwater control projects throughout the archaeological site and adjacent land, the exact projects to be defined by previous study undertaken by CEB. Consider backfilling parts of the Hawliyah Canal.
- With optimal crop water consumption determined, begin migrating area farming to low water consumption and shallow root cash crops.

Priority Tasks for Improving Infrastructure:

- Consult local al-Hillah planning authorities and traffic department regarding proposed changes to the road hierarchy, the design scheme for improving four arterial roads, and the schedule for upgrading Babylon's access corridors.
- Connect the communities of al-Jimjmah and Sinjar to the al-Hillah municipal sewerage system.
- Upgrade the Jimjmah Commercial Corridor with pavement treatments, hardscape street elements, and building facades to attract commercial development.
- Upgrade the four traffic corridors to divert through traffic around the Central Administration Area starting with those directly impacting it (in the following order): the Bernoun Road; the East Babil River Road; al-Jimjmah Road; and finally the Annanah-Sinjar Road.
- With improvements to the arterial road network, site access corridors and the return of rail service, revise public transportation routes in the area. In tandem, develop the Future Railway Station Connecting Corridor, a pedestrian and bicycle trail to the new Babylon visitor center near Marduk Gate.

Priority Tasks for Interpretation and Presentation:

- Erect a new visitor center outside of the Central Administration Area northeast of Marduk Gate and reactivate the adjoining large existing parking lot.
- Utilize the parking lot west of Marduk for special events only. Automobile and bus parking will shift to the large existing lot in the Future Visitor Center Sub-Area.
- Redevelop the former palace of Saddam Hussein, pending decisions on use, function, and management.

Priority Tasks for Risk Preparedness:

- In cooperation with the Ministry of Irrigation use topographic mapping to identify high flood-risk areas and set flood zone emergency guidelines with associated roles and responsibilities for government agencies as part of the larger risk management strategy.

Review, Revision, and Other Applications of the Management Plan

The management plan should be reviewed annually based on performance measures correlating with the tasks targeted in the twenty-year implementation plan. The SBAH is responsible for steering this process through annual reviews and associated reports produced by the inter-agency coordinating committee, assisted by members of the community, an internal evaluator working with UNESCO, and external international evaluators familiar with the project.

A more substantial evaluation should be planned at five-year intervals through a series of workshops with stakeholder groups where the medium- and long-term policies identified in Section III are addressed and revised in the context of political and environmental changes.

Seeking World Heritage Inscription

According to UNESCO's "Operational Guidelines for the Implementation of the World Heritage Convention" every WHS must have a management plan explaining how its outstanding universal value can be preserved and maintained.[1] It is important that the management plan be formulated and implemented prior to inscription since development and visitation pressures related to such global recognition often cause rapid changes adjacent to and within sites. In Iraq, such change will be tied to security and economic conditions.

The SBAH sought World Heritage status three times for Babylon and failed, largely because there was no management plan with delineated boundaries and buffers.[2] The current plan redefines Babylon as a cultural landscape and presents implementation strategies. This new approach, coupled with the SBAH's cooperation in implementing the plan as outlined here, can greatly improve Babylon's chances of receiving World Heritage status.

While UNESCO provides no specific template for heritage site management plans, demonstrating the capacity to operate the site by having a well-formulated plan under implementation makes inscription attainable. The current plan is designed to ensure Babylon's continued protection and fulfill the criteria for a World Heritage dossier.

Applicable WHS values

To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria. Within the context of the Babylon Site Management Plan, four of the ten selection criteria have been selected and are explained below.

Since 1992 significant interactions between people and the natural environment have been recognized as cultural landscapes.[3] Babylon Cultural Landscape and Archaeological City is now identified as such a property, as its history is characterized by the interaction of ancient peoples and rivers.

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1 UNESCO, *Operational Guidelines*, para. 108-118, 27-28.

2 UNESCO, June 1983. Convention Concerning the Protection of the World Cultural and Natural Heritage, Seventh Session, Report of the Rapporteur, Recommendation on World Heritage List Inscription (unpublished English translation from French in August 1983), 3. This memo states the reasons for deferral. A subsequent UNESCO unpublished memo, dated December 1983, indicated the evaluation of Babylon, identification #278, was deferred, 11.

3 UNESCO, *Operational Guidelines*, para. 47, 14.

The ten selection criteria are outlined below:

i. to represent a masterpiece of human creative genius;
ii. to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
iii. to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
iv. to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
v. to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
vi. to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
vii. to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
viii. to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
ix. to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
x. to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

With reference to these criteria, the following explanations have been written for Babylon and put forth in the SBAH's revised (from 2003) tentative list nomination in early 2012:[4]

Criterion (ii)

Babylon Cultural Landscape and Archaeological City is an urban space that adapted to the ideology of kings and the possibilities and constraints of its physical environment over the course of millennia. The ancient city revolved around the religious complexes of Etemenanki and Esagila (cosmic center of the Babylonian world and seat of Marduk, its chief deity) connected by a Processional Way. As the banks of the Euphrates River shifted, the city repeatedly realigned its axes. The most dramatic adaptive solution was the Neo-Babylonian city, an early example of a grand civic project, the remodelling of a city as an imperial capital.

Criterion (iv)

As the center of an enduring, highly urbanized, agriculture-based civilization, Babylon represents milestones in humanity's development. Babylon traded in grains, oils and textiles, its wealth acquired from maximising the alluvial soil's productivity through innovations like the seeder plough, whose later introduction to Europe likewise boosted crop yields and imperial economies. Knowledge was advanced through the development of one of the earliest written languages. The sciences of astronomy and mathematics evolved as a means of understanding both the cycles of nature (seasons, floods) and the movements of celestial bodies.

4 UNESCO, *Operational Guidelines*, para. 65, 18. The revised tentative list nomination defining Babylon as a cultural landscape and archaeological city was submitted by the SBAH to UNESCO in February 2012.

Monuments including the Ishtar Gate and Processional Way, and the temples and palaces of the Neo-Babylonian city marked the apex of Mesopotamian architectural, artistic and cultural traditions. Along with the many later additions to the site, including pilgrimage shrines, farming villages and Saddam Hussein's reconstructions, Babylon offers remarkable proofs of both the transformations and continuities characterizing a formidable span of human history.

Criterion (v)

Babylon witnessed early and sustained human interaction with the environment. The fertile alluvial plain of Mesopotamia fostered ancient settlements and inspired improvements in agricultural and irrigation techniques. The resulting wealth fueled commerce and urban development alongside advances in science, art, and architecture. At its height, Babylon represents the culmination of an urban way of life inextricably linked with the physical environment. In its time it was a thoroughly modern, exemplary city.

Like all long-lived cities, Babylon was repeatedly refashioned whether in response to natural, economic or ideological forces. Saddam Hussein authored the most recent of these interventions in an attempt to align modern Iraq with Babylon's ancient grandeur by reconstructing parts of excavated monuments. The Coalition Forces' recent presence has reshaped the landscape yet again.

Criterion (vi)

As a center of scholarship, religion, and culture Babylon's legacy is unique. The Code of Hammurabi is one of the most important ancient legal texts and offers insights into Babylonian society. The cuneiform archives discovered at Babylon have enabled the study of ancient literature, mathematics, and astronomy and are the object of ongoing research. Babylon's narrative and imagery, a compelling presence in religious scripture and classical literature, continue to inspire thinkers and artists of every kind.

A Future for Babylon

A well-defined, well-managed Babylon enhances the value of an existing Iraqi economic asset while bolstering a global icon in a time of recovery. It also fulfills UNESCO's criteria for World Heritage inscription, a goal expressed by numerous stakeholders.

An appropriate candidate to be registered on the World Heritage List requires a statement of outstanding universal value, which is made up of several components—brief description, justification of criterion (*see* above) plus statements of significance, authenticity, and integrity. A section describing how the World Heritage Site is managed and protected must also be incorporated. The Babylon Site Management Plan being the foundation for not only this element, but also the underpinning for completion of the rest of the World Heritage Site nomination file.

While a key component of a future World Heritage nomination, the Babylon Site Management Plan should also be recognized and implemented as a stand-alone document supporting the protection of the site as defined by key stakeholders.

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In addition, the various supporting reports found in the appendices contain useful bibliographic references, please refer to them directly especially in regards to the various Iraqi laws.

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For Further Reading

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